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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

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No. 7.



IF S. T. PETTIT wants to reform the thick top-bar, let him commence nearer home and straighten out J. B. Hall, the chap that began it.

MARCH 6 it was 3° above zero. To-day, the 18th, it is 65 above; and as I am writing this, Philo and Fred are taking the bees out of the cellar.

NOVICES should understand that the bees spoken of at bottom of p. 240 as working on red clover are bumble-bees. [Yes, yes, yes; this was a piece of careless proof-reading on my part. The word *bumble* should have been inserted before the word *bees*.—Ed.]

I WOULD SAY to Beginner, page 240, don't trust entrance-guards or clipped wings to prevent swarms going to the woods. Either one will prevent the queen going away, but she will surely be killed a few days later. [You are correct, according to my experience.—Ed.]

ALFALFA, buckwheat, and alsike are given as the principal plants for honey in addition to their other value for planting. Ought not sweet clover to be added in localities where its value as a forage-plant is known? And are not those localities constantly on the increase?

SOME WILL LIKE Poole's entrance-contractor, p. 238, and some will prefer the simpler plan of Langstroth—two triangular blocks, with three unequal sides. By placing these in different positions, and by taking them away altogether, the entrance can be made of eight different dimensions.

GRAVENHORST'S *Bienenzeitung* gives a picture of Alberti's wander-wagon for migratory bee-keeping. It is really a house-apiary on wheels; contains 50 colonies, and costs \$150. When the harvest is better elsewhere than where you are, close the entrances at night, hitch on two stout horses, move to the better place, open the entrances, and the bees are ready for work in the morning. Extractor,

etc., are inside the wagon, and the bees remain the year round. [Dr. Miller sent us a print which we have had re-engraved. It is reproduced on page 288.—Ed.]

THE QUESTION has been raised as to who first gave to the public grafting or inoculating larvæ in queen-cells. F. Goeken speaks in *Centralblatt* of what I suppose is the same thing (*das Umlarven* or *Larvieren der Bienenstöcke*), and says it was given in 1866 by Mehring, the inventor of comb foundation.

HONEY MAY BE thick and of fine flavor when extracted, so that it will not become thin or sour afterward; but it may nevertheless become flavorless, because extracted too soon—not retaining its flavor like that left longer on the hives. So says F. L. Thompson in *Progressive*; and if he is correct the matter is well worth considering.

THE QUESTION is asked, p. 240, "If I should give my honey a good sulphuring on taking it from the hives, would I have to sulphur it again?" If you have Italian blood it will hardly be necessary to sulphur it then or later. In any case, sulphuring on first taking off will do little or no good; but if moth's eggs are there it will need sulphuring later. Sulphur will not kill the eggs, but bisulphide of carbon may.

I BELIEVE I was among the first to urge measuring tongues in the English tongue (I think the French began it), but J. O. Grimsley is right in thinking that we must not go so wild as to consider tongue length alone. Some long-tongued bees may be lazy or short-lived. The question is not how deep a bee can dive, so much as how much does it actually store? [See editorial elsewhere on this subject.—Ed.]

IF THE YOUNG PEOPLE who read GLEANINGS will read "bottom-bar" for "top-bar," p. 228, second column, second line, it may save them from thinking that something is wrong with their understanding. [Yes, indeed. I had the correction marked in the proof, but it did not get into type until quite a number of impressions had been run off. Fortunately, most of the journals went out with the correct reading.—Ed.]

"SOME WHO ARE very fond of candied extracted honey care very little about comb honey. Personally, I much prefer it in this form to comb honey."—*C. Davenport in Amer. Bee Journal*. "Now, how can a man talk that way?" will probably be the mental comment of many a one who reads that. But facts are stubborn things. I have a niece who will not eat comb honey, but is very fond of candied extracted, and it is possible there may be so many cases of this kind not suspected, that it would make quite a market for candied honey.

THE GRAND TRUNK RAILWAY, says the *Canadian Bee Journal*, has issued notice that hereafter comb honey will not be accepted as freight because too fragile. Considering that its fragility is put to a severer test by express than by freight, that decision is a little rough on the Grand Trunk bee-keepers. [The Ontario Bee-keepers' Association had better get after the Grand Trunk Railway. No such move has been contemplated on this side of the line; and the right kind of pressure, if brought to bear from three or four of Canada's best bee-keepers, would result in getting the ruling rescinded, I believe.—ED.]

YOU ARE RIGHT, Mr. Editor, that there are places where Thos. Slack's plan of selling, p. 222, would not work. There is this to be said about it, however, that where there is any thing like an equal chance between his plan and the small-package plan, the Slack plan should have the preference as being *best for the buyer*. Small packages, glassed sections, and all that sort of thing, have their places, but we should especially favor what will give the public the most money for its money without making the producer lose by it. [I say amen to this; and that is why I am in favor of selling sections by the piece when they are properly graded. See answer to Straw elsewhere.—ED.]

WHILE WORKING on the problem of getting thin foundation to work in brood-frames, as mentioned in footnote, p. 225, it might be well to consider the possibility of imbedding wooden splints. I have an idea that a very small splint would answer. Of course, it must be first saturated with wax. [It may be that the wooden-splint idea would be the best solution of the problem—no, it can not be, if the manufacturer can only put very fine wire into the foundation at the factory. Wires can be imbedded by electricity at a rate that is a thousand times faster than the using of splints; but I am willing to concede that splints may be more practicable under present conditions when the foundation is not wired as it leaves the mill.—ED.]

PROF. COOK has written in the *American Bee Journal* some criticisms on Root's A B C which show plainly that he has not had in hand the latest edition. Some will say this is unfair. I say so too; but the unfairness is on the part of the publishers of the A B C. How can Prof. Cook be expected to get into print a comment on the very latest edition if the publishers persist in getting out a new edition every Saturday afternoon? [Serious-

ly, the A B C might now almost be called an annual. The last edition followed the previous one by about 15 months; and the edition now just out may all be disposed of in a year and a half, notwithstanding there were 3000 copies in this edition, of which 3000 have already been sold.—ED.]

DISCUSSIONS in *Canadian Bee Journal* show a difference of opinion as to getting bees out of cellar early. Some say the saving of honey in the cellar is more than balanced by the earlier brood of those taken out early, those taken out very early outstripping those taken out later. Others say that those taken out early make a spurt at the start, but later on fall behind. Wish that we could know something for sure, and know that we knew it for sure. [Ever since I attended the convention of the Ontario Bee keepers' Association at Niagara Falls this question has been playing in my mind. Two or three at that convention urged that it was important to get the bees out early, and no one seemed to dissent from the proposition. I am going to keep our bees in the cellar very late just to see what the effect will be.—ED.]

I STUDIED over that footnote on page 219 for some time, and then I said, "I've always thought of its needing a week or so to let bees have extracting-supers before changing for sections; but Ernest says it needs only a day or two. He also says it beats baits for pure Italians that are stubborn about going into supers with baits. If what he says is true, I've got to capitulate." After a minute I added, "But our bees are never stubborn about going into baits." My wife replied, "May be you don't watch 'em down close enough." I gave her one of my crushing looks as I said, "What does a woman know about bees?" [Next summer, doctor, you try some extracting-supers. Leave them on only a day or two at most, or until the bees get up into them. Then take them off and clap on the comb-honey supers without the baits. I can not remember exactly, but I think I have used one extracting-super as a puller on half a dozen different colonies, and it was not full then. This was an extreme case, but I desired to see what could be done when one wished to pull bees upward, without running too much for extracted.—ED.]

SPEAKING of the variation in sections, p. 218, Mr. Elitor, your first question is right to the point, "Why place so much stress on sections holding a pound?" the answer being that there is no section always holding a pound; but your second question, "Why not sell by the piece?" is off, the answer being that it would not be entirely fair to sell at the same price sections that vary so greatly in weight. [But you will not forget, doctor, that those who advocate selling by the piece recommend and practice very careful grading, both as to filling and weight. Mr. Niver, who always sells by the piece, so grades his sections that they will vary scarcely an ounce at the outside; and think of the time saved, and the convenience to the grocer, and yet no one is robbed. It is the general practice with the

average grocer, when a certain article figures to a half-cent, to give himself the benefit of that amount. If he makes a mistake, as some of them do, he is liable to cheat his customer out of two or three cents. Selling by the piece when sections are carefully graded will, I believe, give the average customer more honest value for his money than selling by the weight.—ED.]

A FEW YEARS AGO I asked in GLEANINGS whether there was any objection to having bottom-bars as wide as top-bars, as I hesitated about using them. No one raised any objection, but now that I have in nearly all my hives bottom-bars $1\frac{1}{2}$ wide, S. T. Pettit and ye editor say they're all wrong. Well, I think I've tried them long enough to know how they work in this locality. To Bro. Pettit, I say that his objection that they choke with dead bees is valid, although I don't know that I've suffered from that cause; but I don't think I ever hurt a bee or a queen by lifting or replacing a frame. To ye editor I say that, with $1\frac{1}{2}$ bottom-bars, I can show combs beautifully built down to the bottom—he may remember that he saw them—and with $\frac{3}{4}$ bottom-bars they are not so good. But I took a different plan with the wide bottom-bars. [Yes, I remember your showing me those wide bottom-bars; and I remember, too, that you succeeded in getting your combs clear down to them by the use of splints; but in the item on this point in our last issue I was thinking of the average bee-keeper, a class to whom the manufacturer has to cater rather than to the special ones who will take time to work out all these various little problems.—ED.]

RAMBLER.

BY ARTHUR C. MILLER.

There dwells a Rambler, lank and long,
Beside the raging sea;
He roams and sings from morn till night—
No bee more blithe than he,
And this the burden of his song
Forever seems to be:
"I ramble here and ramble there,
And tell of what I see."

"Thou'rt welcome, friend," cries Innocence;
"Come in and feast with me;
We'll chat of bees and traps and things
That full of wonder be."
He talks and talks, and shows his traps
Which Rambler likes to see,
But sees with eyes brimful of mirth
Rich fun there's sure to be.

The Rambler smiles and passes on
With songs across the lea,
"I love my wheel, I love this life,
I love the busy bee;
I love, above all, confiding man
Who, while I take my tea,
Tells me of things he wots not of,
That's copy unto me."

We love him 'spite his ancient clothes,
With trousers bagged at knee,
And camera and umbrella too,
And eyes so full of glee.
Long may he ramble 'mongst us all,
And flirt with busy bee;
But let Dame Nature quiet alone,
For fickle jade is she.

Providence, March 5, 1901.



Don't kill the pretty bumble-bees
That hum around the barn;
They'll bring the price of clover down,
But ne'er a person harm.

AMERICAN BEE JOURNAL.

In speaking of the Cyprian bees, the *Twentieth Century Farmer* says:

The next breed of bees imported came from the island of Cyprus. They are called Cyprians, a name not always used for bees. The Cyprians hold the world's record for the amount of honey gathered by one colony in a single season. Mr. Doolittle, of New York State, a well-known apiarist, took 1000 pounds of extracted honey from one colony of Cyprian bees one year. They have one serious fault—they are very nervous, and will defend their stores of honey to the death. They can not be subdued by smoke. When aroused the only way to conquer them is with a mild dose of chloroform. On account of their disposition they have not become popular.

Mr. Doolittle says, concerning this:

The above reminds me of the man who puked up three black crows, of ancient time, while the truth was that he threw up something as black as a crow, and told his neighbor so."

My greatest yield of extracted honey from a single colony of bees was in 1877, when one colony gave me the large yield of 566 pounds, besides producing enough to winter on—or about 35 pounds more. So that the total gathered by this colony was not far from 600 pounds, all told—that is, above what they consumed while gathering, or during the summer months. But this was before any Cyprian bees were imported into this country, the bees doing the gathering of this 600 pounds being those best of all bees, *all things considered*—the Italians.

Does that "Twentieth Century" bear the ear-marks of A. D. or B. C.?

Roof apiaries are coming on top—naturally. Mr. York gives a fine view of one in Chicago, belonging to G. E. Purple. The latter says:

The roof as a place to keep bees has its advantages as well as disadvantages. Things in its favor are that the bees are up out of the way, and there is no fear of their disturbing any one (I have never heard any complaints against mine). The roof being nearly level, and covered with clean gravel, there is nothing to hinder the bees, and when they swarm it is easy to find the queen. (I clip all my queens.)

In 1899 Mr. Purple secured about 3200 lbs. of extracted honey in this way, probably all taken from the little dooryards of that great city.

Some time ago the Yazoo region in Mississippi had a boom for bee-keepers. Mr. Daniel Wurth says of it:

The Yazoo Valley, in Mississippi, is a very unhealthy part of the country. I was sick there all summer with chills. It is also a very poor honey locality, as it rains too much. My advice to bee-keepers is to stay away from there. The great bee-keeper who was the cause of my moving there has rendered his 250 colonies into wax. About once in six or seven years they have a good honey-flow from the willows along the Mississippi River, and there are only a few places where that is plentiful.

Our Symposium on the Melting-up of Old Combs.

The Various Methods and Devices Carefully Considered.

THE FERRIS COMBINATION WAX-EXTRACTOR.

BY C. G. FERRIS.

Our first illustration, Fig. 1, shows six cords of combs cut from the frames, and photographed to show the result of what is known as black brood, pickled brood, or foul brood becoming mixed in among the lot. These combs have been accumulating for the past 25 years, and have been used in producing extracted honey exclusively.

To eradicate the disease and transform this huge pile of combs into choice wax as shown in Fig. 7, I call your attention to my large three-basket steam wax-extractor as shown in Fig. 2. This machine is made to take one or more long narrow baskets—see Fig. 4—on the same general principle as frames that we use in our hives. By being made in this manner the frames of comb can be put directly into the basket in clusters or handfuls of six each without breaking or otherwise changing them. Another advantage in being made in this way is, the live steam has a better chance to penetrate than if made to hold eight or ten combs. A basket holding four frames of comb on this principle would be rendered quicker than the one holding six or eight, and the advantage would be with the lighter bas-

ket, taking into consideration the handling. The first basket in Fig. 2 has been cut away to show the follower and press in actual position. After using until the refuse becomes objectionable, or after we have put into the baskets

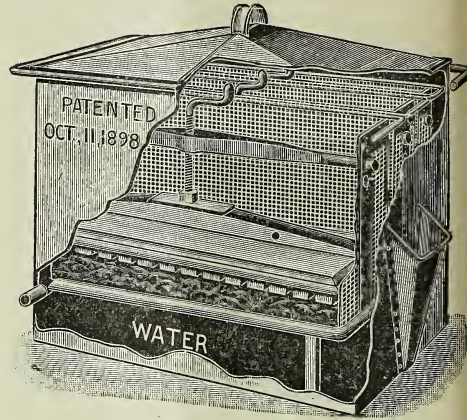


FIG. 2.—THREE-BASKET EXTRACTOR.

about sixty combs of ordinary size, put on the follower as shown in No. 3, at 14; adjust the screw and holder, at 11, and give the pressure desired. On a test of 64 combs that were badly worm-eaten, and heavy with pollen, I secured the following results:

Carefully steamed out 9 lbs. of wax. Pressure applied, and pressed out 8 lbs. 14 oz.



FIG. 1.—SIX CORDS OF COMBS RENDERED IN FOUR DAYS. WAX SHOWN IN FIG. 7.

Any one can do the same under the same conditions. Follower, screw, and bar can easily be removed, and are removed when combs are

and, when full pressure is applied, forcing the honey rapidly out without any discoloration whatever.

Section Fig. 3 shows the machine cut through the center, apparently. Fig. 2 shows the extension, handles for handling the tank. In Fig. 3, steam and odor escape to the stove at 6 and 7; water is supplied to the extractor at 8 and 9; drip pan is at 5; 13, refuse; 14, follower; 11, iron bar and screw; 12, basket; 15, release of bar from baskets.

The baskets are made in a most substantial way of extra heavy galvanized wire cloth, all in one piece, united and soldered at the ends to galvanized band iron. All are interchangeable and self-spacing—as much so as our frames. AA shows the holes in one end for receiving press; see Fig. 4.

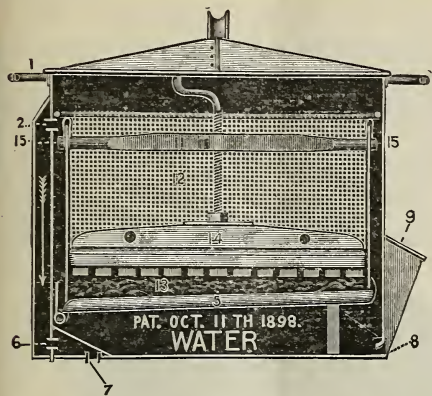


FIG. 3.—LONGITUDINAL.

being rendered. Two motions place ready for use, and the same removes it from position when not needed.

Four baskets should be used with this machine. While one or more are taken to be cleaned, the extra one takes its place, so the

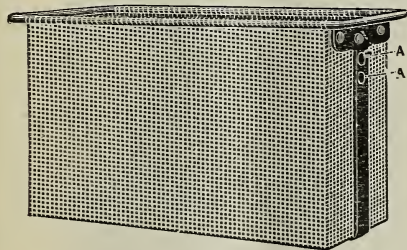


FIG. 4.—BASKET.

rendering can be carried on indefinitely. It can also be used to great advantage in pressing the honey from uncappings. As they accumulate they are to be put into the baskets,

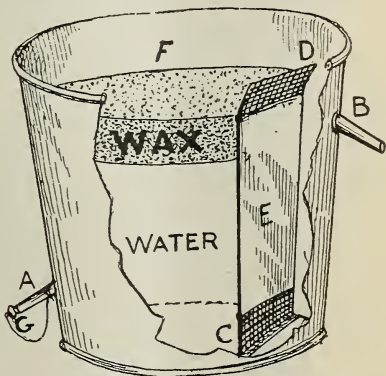


FIG. 8.—G. C. FERRIS WAX-BUCKET.

The wax cakes, after coming from the extractor, are of all sizes and all shapes, due largely, of course, to the abundance of water used in rendering. The wax at this stage somewhat resembles dark maple sugar, having a coarse granular appearance. We now scrape all sediment from the bottom of the cakes, and clean the tin buckets by placing them in the oven of the stove long enough to get them piping hot, when, with a clean piece of burlap, they are wiped clean easily. This is important, as the wax will not be clean should the buckets be dirty.

By a very simple contrivance as shown in Fig. 6, and illustrated more fully in Fig. 8, we take these irregular, off-colored cakes referred to, and, after cleaning out the baskets and extractor, we again prepare as for rendering wax. We place the wax-refiner as shown in Fig. 6, at 1, and bucket, so the wax flows through 1 to 2.

When 2 is full it should be taken away and another put in its place. Wax in



FIG. 6.—WAX REFINER AND BUCKET IN SHAPE.

irregular cakes should be put direct into the baskets, and then run rapidly into the wax-refiner at 1, and into 2, as given above. Cooling bodies contract so after filling the buckets full we do not try to empty them of wax until they cool sufficiently to almost drop out, as they will after a time. The results are shown in No. 7, in having nice even cakes of choice wax ready for crating. While rendering combs as shown in Fig. 1, many of them were white drone combs, and new foundation that had not been brooded in. Those were put to one side with the intention of having a choice quality of wax that would command a higher price than ordinarily. When the old combs and the new had

THE HATCH-GEMMILL WAX-PRESS.

Why a Detached Press is to be Preferred to a Combined Steam and Wax Press.

BY F. A. GEMMILL.

Some years ago I had occasion to melt up a large quantity of old brood-combs, varying in age from five to fifteen years; and, as a result, have had considerable experience in rendering such in order to secure the greatest amount of wax therefrom, with the least possible loss of time, labor, and expense.

The Dant (or gunny-sack) plan, probably best known to your readers, was the one first used. Next came the solar system, *a la* Board-



FIG. 7.—WAX RENDERED FROM SIX CORDS OF COMB.

been refined, there was no difference between the two lots. This is sufficient to show its value used in connection with any steam wax-extractor.

South Columbia, N. Y.

[Mr. Ferris' experiment, showing the saving effected by a press, is somewhat startling in its results. It would look as if the old-fashioned steam-extractors took, under certain conditions, only 50 per cent of the wax in the old combs. *In the experiment under consideration, the press actually saved 9 lbs. of wax, nearly. At an average price of 25 cts. per lb., this would be \$2 25.* At this rate, how long would it take to pay for a press, either as a part of the steamer or as a separate machine like the Gemmill Hatch press? Referring to this last machine, I have asked Mr. Gemmill to tell of his experiments in detail, which he does.—ED.]

man—a capital method for uncappings, and combs containing few cocoons, and little or no pollen.

Later the Doolittle arrangement, combining pressure while the combs were still immersed in boiling water, and manipulated out of doors, was discouraged by a friend of mine, and I therefore next tried the Swiss steam or Ferris system, all of which satisfied me that much wax was being lost for want of proper and economical plans to secure it from such combs as described. The Salisbury method of treating the refuse or cocoons with acid did not get a trial, for the reason that I could not readily arrange for so doing. After considering the results of my experiments, I concluded to use pressure in some form, and finally adopted a modification of the Cary-Hatch or cheese-press process, as illustrated and described on page 315 of 52d thousand of A B C book, published by the Root Co., with some improve-

ments by myself; while Mr. Chrysler, the present manufacturer of the press in Canada, has made some additions to the form and follower, which are considered by some an advantage.

I have no desire to underestimate the results or attainments of others with their own inventions or apparatus for securing the desired ends; but for my own purpose the so-called Hatch-Gemmill press is all that is claimed for it, and I am pleased to have the indorsement of the above statement by our mutual friend Mr. J. B. Hall, of Woodstock, one of Canada's best apiarists. What do you think of such a man, when he actually proposed to remain away from the Ontario bee-keepers' meeting, held at Niagara Falls, in order to melt up combs by this system, knowing full well that he could not be spared, and had to be telegraphed for to present himself? Why, one would naturally conclude attending conventions was a more disagreeable matter than rendering combs, under such circumstances.

I think it has been generally conceded in the past, that, if as much wax could be secured from old combs as would fill a similar set of frames full of foundation, it paid to melt up all defective or unusable combs rather than continue their use.

My experiments, carried on by the various methods first enumerated, forced me to conclude I had not been getting much more, or about a half or two-thirds at most, and not as rapidly or cheaply as I desired, and concluded to use high pressure exclusively as soon as the combs were brought to a sharp boil, and at once, but leisurely, transferred to the press, since which time my own average has been 3 lbs. of wax from a set of 8 Langstroth frames, while Mr. Hall has succeeded in securing from $3\frac{3}{4}$ to $4\frac{1}{2}$ from 8 Quinby combs, according to age, of as beautiful yellow wax as one would wish to see, for the reason that it had been forced through the refuse and quilt, and consequently strained at once to perfection.

I am quite well aware that objections have been raised to the use of this press as illustrated and described, for the reason that the cheeses, or slumgum, would cake or "freeze," or chill before pressure could be applied; but I can assure the readers of GLEANINGS that any one who allows such a thing to take place is a poor manipulator, and not possessed of much that goes to make a successful bee-keeper; and it does not require a lightning operator either.

Here is Mr. Hall's answer to that objection: "With me the slumgum cheeses do not cake, much less 'freeze;' nor does the wax splatter about."

I say amen to his statements. The only precaution that has been taken to avoid such an accident is, to first fill the press with boiling water, allowing the mats and faces to become water-soaked before commencing operations. This, however, is made to prevent the possible absorption, and, at the same time, expedite the removal of any wax from the press after removing the cheeses.

The quilt or material (no bags are employed) for confining the supply to be pressed is

composed of linen screen, a coarse kind of cheese-cloth, and it may be doubled if one so desires it, although one thickness appears to be strong enough. This article costs but 15 cents per yard, and should be about 54 inches square, and is much to be preferred to gunny sacking, as the refuse is much more easily and rapidly removed when cool. A good plan is to have two or more such quilts for convenience in working expeditiously.

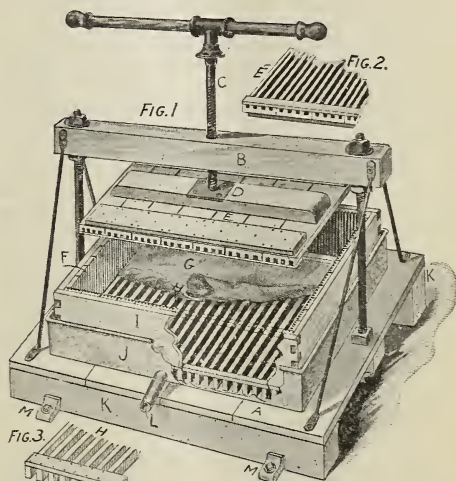


FIG. 9.—HATCH-GEMMILL, WAX-PRESS.

Fig. 1.—A—Bed, little higher at back end.

B—Beam for screw and braces.

C—Hand-crew and lever.

D—Iron plate on follower.

E—Slotted bottom of follower.

F—Slotted sides of case.

G—Cheese-cloth or burlap.

H—Slotted bars on bottom-piece.

I—Case.

J—Galvanized tank.

K, K—Heavy wood foundations.

L—Spout.

M, M—Braces running through K K to bolt to floor.

Fig. 2.—Part of the follower turned bottom side up, showing E.

Fig. 3.—Detail part of bottom part showing construction of H.

I have been asked why a press of such design or modification is superior to a wax-extractor like the Ferris, having a *press inside of the extractor*. To be candid, I have never used the Ferris except by the methods given by the inventor, with the follower, and can not at this writing speak of the results likely to be obtained, where high pressure, such as I have been using with the press, was used with that machine.

I have, however, several reasons for preferring my own hobby. First, I have found it necessary to fasten securely the press to the floor of the honey-house in order that the proper pressure may be applied.

Second, it has not been found necessary in either the case with Mr. Hall or myself to use steam or any particular kind of receptacle for melting the old combs, as an old boiler or several smaller tin pans answer admirably, and

the contents of one of the latter can be transferred in lots to the press while the others are heating for future use.

Third, much less fuel is required by such management; and the danger of fire or accident is not as great as where pressure is used while the material is still on the stove.

Fourth, I prefer that the back end of the press be raised two inches higher than the front, as by this means the water and liberated wax run directly into the pan in front, thereby leaving much less wax to be removed after the refuse has been taken therefrom.

Fifth, the only other article for securing the wax by pressure, that I have seen, is operated with steam, but is far too small in capacity for those requiring to melt up a large quantity of combs, so that I consider it but a toy as at present manufactured in Canada.

No claim is made that this article is the best of its kind manufactured. I trust, also, that future experiments may still further improve the methods now in vogue for securing the best results in wax-rendering, and that those making such will allow their fellow bee-keepers any advantage thus realized, as I believe in helping one another as much as possible in this important part of apiculture. My only desire is that my mite in this direction will be of as much benefit to others as my friend Hall and myself have found it.

Stratford, Ont., Can., Feb. 4.

[As Mr. Chrysler is the maker of the Gemmill machine, and has made some improvements, I asked him to tell of them, and how he uses the machine. Mr. C. writes:]

THE GEMMILL-HATCH MACHINE

as Made and Used

BY W. A. CHRYSLER.

In December, 1899, I purchased of Mr. Gemmill a sample of his wax press, and he very generously encouraged me to manufacture them for the trade. I found after a trial it needed some better way of liberating the melted wax that would collect in the form and above the cheese while pressing. This wax had to be cooled and hardened with cold water poured into the form, to be successfully removed, causing much loss of time, and making it necessary to rewarm before commencing to press again. I made the form a little larger, and placed fluted or grooved pieces of wood, within grooves running up and down, all around its sides (on the inside) to drain all melted wax that might collect and come from the top of the cheese. This done it was not necessary to retain the rolling slatted mat that was used on top of the cheese. The follower was made fluted on its under side to conduct all melted wax to the outside. To prevent the canvas from sometimes squeezing up between the form and follower, two strips of wood, $\frac{3}{8} \times \frac{7}{8}$, were nailed across and crosswise of the flutes, or grooves, at their ends, to press the canvas far enough down to be sure of not hindering the wax from passing away.

The form needs to be made strong at the corners or it will burst out from the pressure. With dovetailed corners like the hives, and well crossnailed, I think it would be sufficient. The press, as is now perfected, I think stands head and shoulders above any other that has been placed before the public, for rapid work, and at the same time getting more wax out of a given amount of old combs.

The *modus operandi* of the Gemmill wax-press, as operated by myself, is as follows: It will be supposed you have arrangements for melting up a large quantity of combs. If you have two stoves and large pans the full size of their tops, you can keep them busy melting, for the capacity of the press for doing rapid work is limited only by the inability to melt fast enough; and only one man need be engaged.

Have your press securely fastened to the floor with platform slightly higher at the back, your combs melting (in water of course), and a good-sized pail of water to be heated to the boiling-point when you are about ready to begin to press. When that time comes, place a cork in the outlet of the pan of the press. The lower rack, the form in place, with canvas inside and follower on top, take the pail of boiling water, pour into the form, and thoroughly wet and heat all surfaces that will be exposed to wax. After about five minutes the water may be drawn off. Your melted combs being ready (boiling-point), you remove the follower to one side, and spread the canvas over the form; place a receptacle to catch the wax from the pan. Now dip your melted product into the canvas in the form. Dip it full; then fold in the overlapping edges of the canvas, drawing taut, so as not to have any surplus canvas in the way of wrinkles near the form. Now place the follower on top and slowly screw down. Give it a little time to drain off. When you have screwed down fairly tight, leave it for two minutes (your time can well be employed in putting more old combs to melt), then give another turn at the screw, and another wait of two minutes. The wax will be running slowly; but it is as pure gold, and can be counted as net gain, for you have already obtained more than other processes furnished.

When screwed down as tight as possible, and drained, loosen the screw; draw pan, form, and all forward from under the press beam, letting the forward edge rest on a box, or strips arranged of suitable height to support; put one foot on the follower, and with both hands draw up the form. Remove the follower. The cheese containing the refuse will be hot; but take hold of some loose edges at such places as will allow you to carry it where you wish to deposit by letting go all but one hand. The refuse will usually all fall out clean. Give it a shake, hurry back, replace, and repeat as before.

Chatham, Ont.

[It appears that there are two methods of rendering up old combs—one using steam in connection with the press, pressure being exerted on the refuse while it is surrounded by

hot steam, and still in the extractor; and the other, pressing the refuse *after* it is taken from the boiler or extractor. To the last named, objection has been made that the refuse chills or cools, or, as some have expressed it, "freezes," before a full pressure can be exerted. Regarding this I talked with Mr. J. B. Hall, who is a user of the Gemmill press, and he said there need be no danger of

the slumgum chilling if a man understood his business, and worked rapidly; and, besides, said he, "These little screws inside of the ordinary steam wax-extractors are too small. I want something on which I can work the entire strength of my arms and body. With the Gemmill press and its powerful screw and frame I can exert a much heavier pressure. Those other things are only toys."

I have been surprised that we here in America have

hitherto made comparatively little use of the principle of the steam and screw wax-press combined. Even Mr. Ferris did not employ

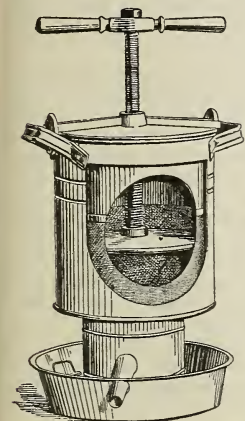


FIG. 10.—GOOLD, SHAPLEY & MUIR'S WAX-PRESS.*

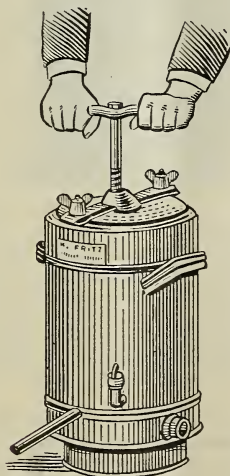


FIG. 12.—CARL FRITZ'S STEAM WAX-EXTRACTOR.

it originally; but, discovering its advantage, he adopted the feature in his extractor, and is now using it, I believe, in all his late machines. The Goold, Shapley & Muir wax-

* I understand that the company are about to put out an improved machine. For further particulars, write them at Brantford, Ont.

press was one of the first advertised on this continent, and is illustrated in Fig. 10. This machine was put out during the winter of 1899 or 1900. Knowing that Mr. Holtermann had something to do with the design of this machine, I wrote him, asking where he got the idea. In reply he said he thought he obtained it from a German catalog. Wishing to know more about the principle, and how extensively it had been used, I wrote to some of my German friends, and in response received a lot of back numbers of old German and French bee-journals and German catalogs. In Figs. 10, 11, 12, 13, 14, and 15 I have reproduced some of the cuts that are shown in the publications above referred to. The earliest mention of these machines to which I have been referred is the "History of the Steam Wax Press," in the *Bienenwirtschaftliche Centralblatt* for 1892, No. 22. Another early reference given to me of a similar machine is in the *Leipziger Bienenzeitung*, 1893, page 203. It is claimed in this that Haeckel, in Schlath, Württemberg, Germany, was the inventor of the steam and screw wax-press. Still another reference is to the combined steam and wax presses described in Witzgall's "The Book of the Bees." This is a most

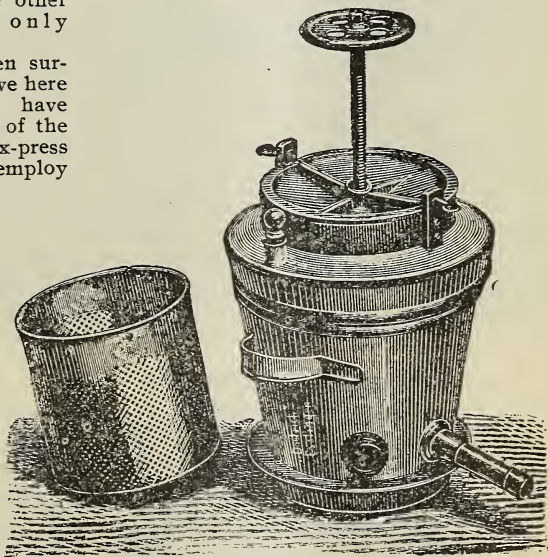


FIG. 13.—THE DIETRICH STEAM WAX-PRESS.

magnificent work of 540 pages, and is published in Stuttgart, Germany, by Eugene Ullmer. The book was written in 1897. Concerning the combined steam and screw wax-presses, and their use in Germany, the author says:

We will describe here only the Dietrich apparatus, as the essential principles of it are the same as those of all the others. It consists of an outer receptacle or jacket, having fastened near the bottom a tube for the purpose of allowing the melted wax to run out. Fastened to the top of this outer receptacle is a peculiarly shaped cover made of cast iron. Through the middle of it passes a screw with a wheel on the upper end to turn it. Inside of the outer vessel is a cylinder

pierced with holes. This is to contain the fragments of wax to be melted. On the lower end of the screw is a disk fitting exactly into the perforated cylinder. The space between the inner cylinder and the outer one is designed for the generation of steam. Through the upper orifice pour warm or even hot water, and place the apparatus on the stove. Four in enough



FIG. 14.—KOLB & GROBER STEAM WAX-PRESS.

water to come up to the top of the glass observation-hole. The steam soon causes the wax to melt, which runs out into a vessel beneath, which is partly filled with cold water. . . . For more extensive bee-keepers the steam wax press is to be recommended, such as is offered for sale by Kolb & Grober, in L. Rch.

This description will answer for any of the other presses shown on this page.

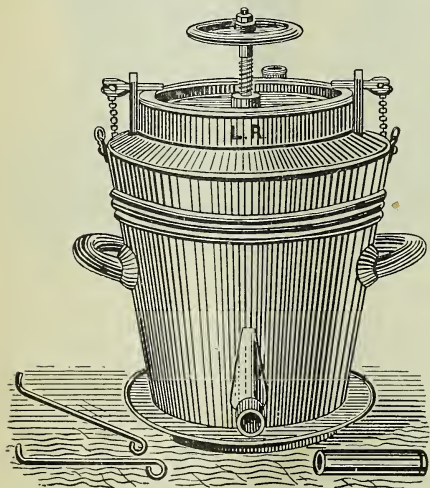


FIG. 11.—ROBERT-AUBERT STEAM WAX-PRESS (FRENCH).

Another writer in a French journal, *L'Apiculteur*, says:

The solar extractor gives nice wax, but there remains a good deal of wax in the refuse. Among the small wax-extractors, one of the best is one operated by steam with a press. One of these implements, furnished by the house of Robert-Aubert, is placed on a stove, with hot water between the two sides, and on the inside there is a small receptacle pierced like a skimmer. It is there that the wax melts and is pressed. But the process is very long, and it is infinitely better to melt the slumgum in a simple boiler, and then dip out the melted wax with a dipper and pour it into a sack fitted to the inner receptacle, which is heated to the boiling point of water. It is then pressed, and the sack removed to take out the dross, or slumgum, and then begin again. In working thus with this apparatus there is but very little wax left in the slumgum.

I said I was surprised that here in America we had hitherto made comparatively little use of the screw press in the ordinary steam wax-extractors. I am the more surprised, because the Europeans seem to have utilized the combination for nearly ten years. The fact that so many machines are made, as will be seen by the illustrations (and these illustrations include only a very few of the great variety), would seem to indicate that the principle, when rightly applied, is good. I have had some experience in having the piles of slumgum chill in a wax-press of the Cary-Hatch principle while I was getting ready to put on the squeeze; but, as Mr. Hall says, there is probably no need, if one works right, of hav-

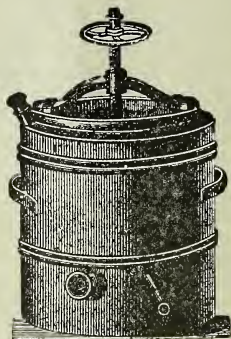


FIG. 15.—ROTHSCHUETZ WAX-PRESS.

ing this pile of refuse, or slumgum, just from the boiler, and hot, chilled before the screw is turned down. I am very sure it is true that the average man would drizzle wax from the boiler on the stove to the wax press on the floor; and for this reason, if for no other, the combined machines would have the preference.

From what I can judge from the illustrations I conclude that some of the German machines at least are mere toys compared with the Ferris. The great trouble with the first-named machines is that they are *too small*. Then while they are standing on the stove I do not see how sufficient pressure can be applied unless another person takes hold of the handles while the operator himself turns down the screw.

I omitted to explain that the tops of all the German machines are of cast iron. For the purpose of standing the strain of the screw, some of these cast-iron tops rest on gaskets

that are imbedded in the top of the steam-extractors. It is thus possible to make them steam tight at the top.

When the slumgum has been "cooked" enough, the free wax runs off and out of the spout, then pressure (not before) is applied, squeezing the melted wax out of the slumgum like water out of a sponge.

It will be noticed that, after the wax has been put under pressure, this slumgum must be emptied from the basket. In the mean time the basket cools from being opened, because it must be dumped, and then be refilled with old combs. Mr. Ferris overcomes this trouble by having *extra* baskets, of just about the right size and shape to take in Langstroth combs; and when one set of baskets or one basket, we will say, has had the squeeze applied, it is quickly lifted out of the steamer and another one put in its place, and the "cooking" goes merrily on. In the mean time the basket removed is dumped, filled with combs, and stands ready to take the place of the next basket that is ready to be dumped.

As to which is the better principle, the Hatch-Gemmill method or that employed by these others as illustrated, using a screw in connection with the steam wax extractor, I can not say from experience; but I have illustrated the various machines so that one can use whichever device he prefers. But I am sure of this much: That it pays, and pays well, to put all the slumgum from old combs in a press of some kind before throwing it away. A good press ought to pay for itself in one day's time; yes, and I should not be surprised if it would do so in *one hour's time*. I do not know of any better way for a bee-keeper to make good wages than for him to make a wax-press or buy one. See editorials, elsewhere.—ED.]

GLIMPSES OF CUBA AND CUBAN BEE KEEPING.

BY A. L. BOYDEN.

On the afternoon of Dec. 26, in company with Mr. Craycraft, we called at the office of Bridat, Mont, Ros & Co., and fortunately found Mr. Bridat engaged in conversation with one of our American bee-keepers, W. W. Somerford, whose name is familiar to our readers. I had never met either of these gentlemen before, but had soon arranged with Mr.

Somerford to make a trip to his place, which is near El Caimito, about thirty-five miles on the stone road southwest of Havana. I then went down to the warehouse with Mr. Bridat, and saw some of the honey he had taken in recently, about 336,000 lbs. This was put up in tierces, being about 100 gallons each. You may imagine that it requires a very substantial barrel to hold such a weight of honey. In one corner of the room was a pile of beeswax, and, on inquiry, Mr. Bridat replied that there was about \$10 000 worth. The sight of the contents of this warehouse gave me my



BELFLOWER, OR AGUINALDO.

first real idea of the extent of Cuban bee keeping.

The following day I spent in Havana in company with Messrs. Craycraft, de Beche, and Penfield, the latter gentleman having an apiary at San Nicholas, where he has produced some very fine comb honey, which I shall allude to in a later article.

The morning of Dec. 28 found me on my way to Caimito. I took the train as far as Mariano, thence by stage to Somerford's. I found Mr. S. busily engaged putting up a tent in which to extract honey. On my arrival he insisted upon dropping his work, and we at once went to the house to talk as only bee-keepers can. Toward evening we started out on our wheels down the stone road to Punta Brava to visit the Du Sac apiary, managed by Harry Osborn, son of the late A. W. Osborn. On our way down there we met a younger brother of W. W., Mr. Frank Somerford, and, after a short consultation, he agreed to remain over night and go with us out to the apiary of Harry

Howe on the next day. We started down to Osborn's, where I saw the steam-extractor and the famous Cuban apiary which have more than once been described in GLEANINGS. We visited with friend Osborn, ate oranges, and then all three rode up to Punta Brava for supper. After supper we visited Pedro Luis Garcia Zamara and his partner, Sr. Alfredo Felipe, and later we rode out in the moonlight to see the apiary of Pontanilla Bros., merchants and bee-keepers. While I could not see this very well by moonlight, it appeared to me that it was well kept, and that it must be in the hands of a very progressive apiarist. We finally returned to Somerford's late in the evening, and prepared for our trip to Howe's the following day.

Our trip down to Artemisa along the stone road was without event. On my way down there I halted our party of four, made up of W. W. and Frank Somerford, Harry Osborn, and myself, to take a shot at the aguinaldo, or bellflower, which is here shown. This is not a very satisfactory picture, but it will show the profusion of the bloom. The plant grows wild, and is found running over walls, hedges, and in every conceivable place. It does not, however, grow in every locality, for, while it is profuse in one place, within a mile or two there may be almost none, so one must not expect to find in Cuba that every locality is a good one for bee-keepers.

On our arrival at Howe's we found Mr. Glen Moe, of Candelaria, with Mr. Howe, and Mr. Harry Beaver. The latter is managing an apiary situated a few miles from Artemisa, for Mr. W. L. Coggs, of West Groton, N. Y. They were busily engaged in extracting; but on our arrival they discontinued their work, and soon our party of seven was on the way down to Artemisa for dinner. I shall never forget the coconut dessert we had at that Cuban dinner. My morning ride had made me very hungry, and gave me a keen relish for this. After dinner we visited in turn the apiaries of W. L. Coggs and C. F. Hochstein, known to readers of GLEANINGS as "The American Tramp."

While the Cuban stone road rather surpasses the average American road for bicycling, I do not think I ever undertook to make a trip of four miles over as rough ground as that trip of four miles in the woods to Hochstein's. I had warned the boys that I was not much of a bicycle-rider; but they, evidently, were determined to see what I could do, and, very fortunately for me, I happened to be pretty steady that day, and succeeded rather better than some who were more used to the route than I. We found Mr. Hochstein busy extracting. The season thus far had not come up to his expectations, though he was inclined to believe the locality was more at fault. We passed several hours very pleasantly with him, and his family of wife, son, and daughter. My chief regret during my visit in Cuba was that I was necessarily obliged to hurry from one place to another, and could scarcely keep all my appointments or stay with my friends as long as I desired.

My next will contain a view of the apiary of

F. O. Somerford, of Catalina, who has been in Cuba some ten or eleven years, and perhaps been engaged in bee culture as long as, or longer than, any other American there.

SPRAYING DURING BLOOM.

Not Recommended by the New York Experiment Station, nor Sanctioned by Green's Fruit Grower.

BY E. R. ROOT.

This will be about the season for spraying; and the following, taken from *Green's Fruit Grower* for March, 1901, is most timely and valuable. It is true, that we published an account of the same experiments on page 103; yet this evidence, sanctioned as it is by one of the leading fruit-papers of the land, should have great weight with fruit-growers who are inclined to regard all testimony offered by bee-keepers as biased and one-sided evidence; but here we have something that comes from one of their *own organs*. If they won't believe this, they would not accept any evidence. So valuable do we consider it that we are printing this in the form of a leaflet, and will furnish it to the bee-keepers at the mere cost of postage and wrapping. We suggest that bee-keepers in all fruit-growing regions distribute these by the hundred. We will, therefore, send them out postage paid at the following rates: 10 for 1 cent; 100, 5 cts.; 500, 15 cts.

SHALL WE SPRAY TREES WHEN IN BLOSSOM?

In the coming time, to insure success in fruit-growing the fruit-grower will be obliged to manage his orchard in accord with scientific principles. Perhaps farmers with little scientific knowledge will be able to manage an acre or two so as to produce all the fruit required for home consumption; but to grow fruit for market so as to be able to compete with those who grow fine, first-class fruit, he will be obliged to know enough of entomology to know what poisons to use to destroy the different species of insects and also when to apply those poisons to effect greatest results, and at the same time do the least harm to the trees or fruits. He will also need to know enough of fungology to be able to combat the different kinds with remedies, when those remedies will be most effectual. As it happens, most of the insect enemies come into active life with the first warm days of spring. A few warm days will hatch the eggs in which the insects have passed the winter, or cause the larvæ, which have spent the winter in pupæ, to leave their winter abodes and commence crawling over the tree or plant on which they have wintered, in search of the tender leaves which form their most appropriate food. The instinct of the maternal parent guides her to deposit her egg close to suitable food for the young larvæ. Hence we learn that some of the most formidable insect enemies of the fruit culturist—the bud-worm, the case-bearer, the apple-leaf folder, the leaf-crumpler, and several others a little less destructive, are ready to enter the opening bud and commence eating before it is fully expanded, and those very formidable enemies, the tent-caterpillar and the canker-worm, soon follow. There is no period in the life of those insects when they can be so easily destroyed by arsenical poisons as when they first begin to feed. A weak mixture of arsenic will then destroy them while a much stronger mixture may fail to do so when they have attained to larger growth. It is evident, then, that apple-trees should be sprayed with Paris green, or other forms of arsenic, when the buds first begin to swell, certainly when the leaves begin to unfold. As many kinds of fungi commence to grow with the first warm days of spring, Bordeaux mixture can be profitably mixed with the arsenical poison.

A few years ago, from a mistaken idea of the time when the codling-moth first lays her eggs, orchardists,

fearful that if they waited until the apple-blossoms fell, it would be too late to destroy the larvae, sprayed their trees while in blossom, and bee-keepers complained that their bees were poisoned, and prevailed upon our Legislature to pass a law forbidding spraying while trees are in blossom. Many orchardists felt greatly aggrieved by this law, asserting that they were forbidden to spray just when spraying would do the most good, and that they must sacrifice their apple-crop, upon their own land, for the benefit of the bee-keeper, who had no claim upon their orchard as a bee-pasture. More recently, a careful observation of the habits of the codling-moth led to the discovery that she does not deposit her eggs immediately after the blossom falls, but several days later, and that, instead of placing them in the calyx, or blossom end of the fruit, as had always been supposed, she lays them upon the side of the young apple, gluing them to the rind, and that when the egg hatches the larvæ crawl over the fruit in search of a place of concealment which they generally find in the partially closed calyx. This seems to show that there is no occasion for haste in spraying immediately after the blossoms fall, but that any time before the calyx closes will answer when the little cup may be filled with the poisoned water ready to give the worm an inhospitable welcome to its first meal.

Still more recent investigations show that it is not only not necessary to spray for the codling-worm when the trees are in blossom, but that it is a positive detriment to the fruit to spray at such a time. At the late meeting of the Western New York Horticultural Society, Prof. S. A. Beach, of the New York State Experiment Station, at Geneva, detailed some experiments he had made in spraying apple-trees, when in bloom, with Paris green. He experimented in two orchards in Ontario County and two in Niagara County. Had sprayed some trees in all of the orchards and left others contiguous without spraying. All the trees were very full of blossoms. On the trees sprayed, but few apples set, a very large proportion of the blossoms falling, apparently, before the fruit set in, while on those not sprayed a very large crop of fruit grew. To make the test still more conclusive he selected trees very full of blossoms alike on both sides, and sprayed one side of each tree, leaving the other side unsprayed. The result was, on those sides sprayed, the fruit set very sparsely, while on the opposite side, not sprayed, a heavy burden of fruit grew. Prof. Beach came to the conclusion that, where you fairly hit an apple blossom with Paris green strong enough to kill insects, you will pretty certainly kill the blossom. The organs of reproduction in fruit-blossoms, when fully exposed, are very tender and easily killed. A slight frost or a long cold rain will often leave an orchard, covered with blossoms, with little or no fruit. If these experiments shall be confirmed we shall confess that the Legislature "builded better than it knew;" that while protecting the lives of the bees it prevented fruit-growers from destroying their fruit.

CHUNK HONEY IN THE SOUTH.

Peculiarities of the Southern Markets; When free Communication in Comb honey Supers is Needed; Importance of Protecting Comb honey Supers with Double Walls; Baits and their Real Purposes.

BY ADRIAN GETAZ.

Several articles have appeared in bee-journals lately concerning chunk honey—that is, honey cut out from the combs or sections, and sold in buckets or other receptacles.

There has been some misunderstanding on the subject. The fact is, throughout the South the honey is almost altogether sold that way. In the North the honey, as well as most of the other farm products, is sold to the grocers, and the retailing to the customers is done by them. In the South, the farm products, vegetables, fruits, poultry, honey, and even dressed pork, sausage, cornmeal, sorghum molasses, and cider are bought on the public market by the farmers and gardeners, and re-

tailed out directly to the consumers, who come also to the market—that is, the majority of them. What is left after the market hours (12 o'clock generally) is either peddled from house to house during the afternoon or sold to the grocers and shippers for whatever they will give for it.

Honey is sold that way. Most people buy it that way in preference—some because they think the nice, white, and well sandpapered sections seen in a few of the groceries are "manufactured honey." The majority of consumers calculate that, in buying sections, they have to pay for the wood, and, besides that, the sections are not always full weight by any means; so they buy now and then a "bucket" of chunk honey. Generally, also, the vender "throws in" a pound or two; that is, if the honey weighs, for instance, 21½ lbs. he will "let it go" for an even 20 lbs. So you see it is a question of "locality" altogether.

That party in Texas who shipped some chunk honey North some time ago was evidently ignorant of the fact that the Northern markets require comb honey to be in sections altogether, and thought that, provided the honey be good, the kind of package and shape could not make much difference.

As to the chunk-honey system being a good one, I say no; and it is only a question of time when the comb honey of the South will be sold also in section boxes.

The question has been raised whether more honey could be secured in large boxes than in sections, supposing that both are furnished with foundation. It depends on the conditions of the colonies and on the hives used. Years ago it was argued that free communication between the sections or large boxes was necessary so the bees can cluster in them. It was also argued that it was necessary to use shallow frames in the brood-nest; otherwise the honey in the brood combs above the brood would prevent the bees from entering the sections.

When I began bee-keeping with rather small single-walled hives I found it so, more or less. Since I have larger hives and larger colonies, and have the supers protected by outer cases and some packing, I find it different. It is a question of warmth altogether. If your supers are warm enough during the night, as well as during the day, to permit comb-building and other bee-work to go on freely and uninterruptedly, you will find that it makes but little difference whether you use separators or not—that is, so far as the rapidity of bee-working is concerned. You will find that they will begin almost as soon without bait sections as with them, and that the honey contained in the upper part of the brood-combs does not cut any figure at all.

But the supers must be warm enough, otherwise the result would be different. If they are not warm enough, some bait sections will induce part of the cluster to move upstairs, and enable the bees to carry on and extend gradually the comb-building. If the supers are not warm enough, it is better that free communication should be had between the

sections, so a cluster can be formed, and comb-building carried on inside of that cluster. Don't misunderstand me when I say that bait sections are not necessary in a warm super. They are not necessary *as bait*—that is, to induce the bees to come and work in the supers; but they are of the greatest value as furnishing room to store honey at the beginning of the flow.

It is this way: When there is but very little gathered in the field, the secretion of wax is small accordingly. When a flow of honey comes, the secretion of wax, somehow or other, increases in proportion, but not at once. It takes perhaps five or six days to establish the secretion and make a good start at comb-building. During these five or six days but little honey will be gathered, simply because there is no room to put it in; but if you have drawn comb, or sections partly built up, honey will be stored in them and you will gain that much. More than that, during these few days, if the bees have no other room they will cram all they can in the brood-nest, cramp the queen in her egg-laying, and finally swarm—at least, very often.

Knoxville, Tenn.

[I wish to place special emphasis on the last three paragraphs of this excellent article. The matter of protecting comb-honey supers does not receive nearly the attention that it ought. Often the great heat from the sun and the coolness of the night have a depressing (not to say drive-away) effect in the supers. Not a little has been said about this; but the great mass of producers pay very little attention to it. Quite a few use and insist on using double hives or large deep covers that telescope over the whole top of the hive. Mr. Danzenbaker has long used and advocated a double-walled super, or what is practically such; and on top of the sections he recommends, and will have for his own use, a paraffine-paper mat—this mat having on top of it layers of news paper for additional protection. One of the secrets of his success in producing such fine well filled comb honey is the protection which he is very particular to have, and there is no denying that, when his directions are followed to the very letter, some great results have been secured. I fancy, therefore, that Mr. Danzenbaker will say *amen* to every thing Mr. Getaz says on this matter of protection.—Ed]

LONG-TONGUED ITALIAN BEES.

Why we Want Them.

[The following, clipped from the *Michigan Farmer*, strikes a heavy blow, indirectly, in favor of the very thing bee-keepers have been working for in the way of long-tongued bees:]

Will our farmers ever learn what harm they are doing themselves and the agriculture and horticulture of the State by allowing the destruction of bumble-bees on their farms? They have been told repeatedly that the bumble-bee is the only thing under heaven or among men that can pollinize the red clover so it will produce a crop of seed, and yet they go

on destroying the best friend they have on earth, and allow it to be done by their sons or hired men. And then they poke their hands down into their pockets and pay about \$6.00 per bushel for clover seed raised where bumble-bees have not all been destroyed. They do not seem to realize that so small a thing as a bumble-bee can fill so important a place.

The bumble-bee is about the only insect with tongue long enough to reach the red clover. The honey-bee can not do it. The honey-bee can reach the mammoth clover. This accounts for the large yield of seed sometimes secured from this variety when situated where many bees are kept. One man reports a yield of 12 bushels per acre from a field near 100 colonies of bees.

We have no space to tell you all about this subject, or how the people of New Zealand had to send to this country for bumble-bees before they could raise clover seed. A word to the wise should be sufficient. Then how shall the destruction of these our best friends be stopped? How many farmers who read this article will step out and boldly nail up a notice on the barn reading like this: "Bumble-bees must not be molested on this farm"? A notice of this nature should do some good in calling the attention of thoughtless persons to this important subject.

The reason the old queen-bee is often seen about the barn or sheds in the spring is that she builds her nest in a mouse-nest, and not finding one suitable in the field, she betakes herself to the barn. This will be particularly true in a wet spring when the mouse-nests in the field are too wet and unsuitable for her purpose, and it is then that she should not be molested, as the shelter of the buildings is just what is needed at such a time. This was very noticeable about 17 years ago when we had it so very wet all the fore part of the season, which made it impossible to build in the mouse-nests in the field. This caused almost a whole ale destruction of the bumble bee family, from which they have never fully recovered.

They tried to make their nests about the barns or stables, but were knocked down and killed through fear that they might sting some one or sting the horses. But they are very peaceable if let alone. The year it was so wet there was a large nest not over two feet from our heads where we went into the stable, and where we had to open and shut the door, but no one was stung by them. So let us all do all we can to protect the beautiful summer queen when she comes in the spring, dressed in rich colors of black and gold. We should all see in her a beauty and value we have never seen before, and realize more fully the important part she fills in perpetuating our greatest source of fertility—clover.

J. A. PEARCE.

[The above may be putting the value of bumble bees rather strongly, but I am inclined to think our friend is not far out of the way.—A. I. R.]

J. B., Ga.—Regarding the various ways of extracting pollen from the brood-combs, I would say that the most satisfactory way that I know of is to soak the combs over night in a tub of water. The next morning put them in a honey-extractor and throw the pollen out. This plan has been advocated by quite a number; and, if the pollen is not too old or packed too hard, it will come out quite readily.

J. R., Tenn.—Referring to "inky drops" and the prevention of same, we can only say that no smoker will prevent them entirely, but some smokers with a curved snout will prevent the creosote, for that is what the inky drops are, from running out of the combs on to the brood. The nuisance can be abated by using the right kind of fuel, of hard wood or any kind of wood that has very little pitch in it. Avoid using propolized rags, fine shavings, or sawdust. Chips of hard wood, even basswood, will do very well. The smoker we sent you is as proof against inky drops as any smoker that is made.

RAMBLE 184.

Portable Honey-Houses; Wiring Frames; Revolving Stand for Painting Hives; Cart-wheel Sun Wax-extractor, etc.

BY RAMBLER.

Riding across the fields from the out-apiary one day with Mr. McCubbin he called my attention to a small white building about two miles south, and said, "That is Mr. Fray's portable honey-house, and he must be at work in his apiary below the McClanahan ranch."

I was immediately interested in this feature of bee-keeping, and the next afternoon found me mounted on my wheel with my large camera strapped to the handle-bars, and headed for the Fray apiary. I was fortunate enough to find Mr. Fray and his wife extracting honey. I had never met him, and had heard only a few days previous that he was an extensive bee-keeper. Some way I had imbibed the idea that he was an out-of-date, a sort of way-

A two-frame Cowan extractor occupied a central position in the house, and the occupants were uncapping combs. That is what the work is ordinarily called; but Mr. Fray had a brand-new term, up-to-date, and very appropriate. He said they were skinning the combs; and there is no getting around the fact that, when we get through using the knife on a comb, it does look as though it was skinned; but I have an idea that bee-keepers will persist in using the unwieldy term "uncapping."

The photo shows the construction of the house. The open sides are covered with wire cloth; and the blinds, when elevated, form a protection from the sun's rays. The honey runs from the extractor into the can shown at the side of the house. This has the appearance of being a double can. The upper portion is the strainer. Common wire cloth is used. Sometimes attention is so intense upon "skinning" combs and extracting that the strainer and can are forgotten, and the streaks



R. B. FRAY'S APIARY AND PORTABLE HONEY-HOUSE.

back bee-keeper—had not even improved up to the point of nailing hives together with a harrow-tooth; but when I approached his neatly painted honey-house on wheels, I saw stenciled in various places on the sides of the house these words, "Grand View Apiary," "Queen of the Valley," and other names appropriate to bee-keeping (I didn't think to ask Mr. Fray if he applied "Queen of the Valley" to his house or to his wife. As the latter was putting in some good licks with the uncapping knife I am sure she deserved the name).

Putting these items together, as I approached the house I came to the conclusion that there was an up-to-date bee-man inside. The bees were a little inquisitive, and I made haste to get inside the building. I calmly and consecutively introduced myself as the fellow who was slinging honey in the McCubbin apiaries, and we forthwith commenced discussing the probabilities of the honey crop, prices, etc.

down the sides of the can show where sweetness is wasted.

I suggested that a larger tank would save this waste, and also allow the honey to clear before being drawn into cans; "and," said I, "that is the way we do down south. We have tanks that hold all the way from one to ten tons."

"Oh! you are from the south, then?" said Mr. Fray. "They have had a hard time down there I hear, owing to dry seasons."

"Yes, Mr. Fray, they have, that's sure—no honey, and a great loss of bees."

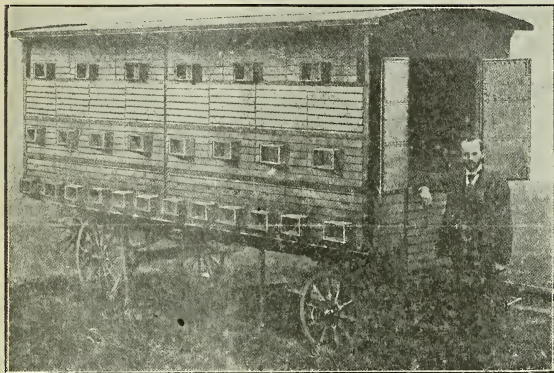
"Oh! by the way," said Mr. Fray, "do you know that fellow down there they call the Rambler?"

"Why, yes, Mr. Fray; I have seen him at the conventions, and a regular old duffer he is too."

"Just as I expected," said Mr. Fray; "and these chaps that are always writing, and snapping their cameras at everybody, don't know any more about bees than you and I do!"

"That's so, Mr. Fray; but, by the way, I have a camera on my wheel, and I should really like to get a photo of your house and apiary."

"All right, sir; that is just what I want. I have been wishing some one would come along

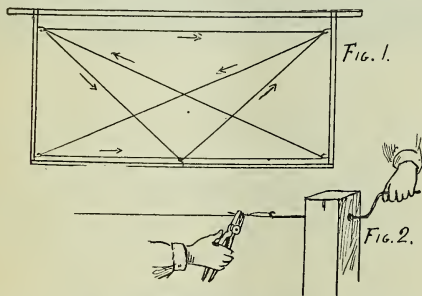


ALBERTI'S WANDER-WAGON.—SEE STRAWS.

that could take a photo. But, say" (and he sort o' froze his eyes on me); "blamed if I don't believe *you* are the Rambler."

This suspicion and discovery had happened several times before in my travels, and we all had a little jollyng over the matter, and after that the photo.

Mr. Fray owns some 400 colonies of bees in four or five apiaries, and he thinks he could not manage them without the use of his portable honey-house. All through the extracting season he moves his house from apiary to apiary, and extracts the honey as the bees



WAY OF WIRING FRAMES AND TWISTING LOOPS.

gather it. Two persons can usually take care of the above number of colonies in this valley. For wheeling honey from the apiary to the house Mr. Fray uses a large two-wheeled cart shown in the photo, and upon which he can pile several supers, greatly facilitating the work.

From the appearance of the apiary shown, one would think that Mr. Fray was sparing of the paint-brush; but it is not so, for the hives shown were eight frame hives purchased from

other parties, and the bees were being transferred to nice new painted ten-frame hives. The ordinary flat cover is used, and no rags, and upon this point Mr. Fray and I were in perfect accord. He was inclined to think that a cover made of two pieces of inch board, with grooves and strip painted, in the center, is less liable to warp than when made of a whole board. As before stated, this climate is trying upon covers and the corners of the hive. In order to hold the latter from twisting out, Mr. Fray uses a little clamp made of hoop iron, extensively used on fruit-boxes, which is nailed to each corner to advantage.

I afterward called at Mr. Fray's headquarters, and found his appliances all in the order of genius and convenience. His frames were all wired, and with a little different kink from the ordinary.

When the frame is nailed together, fine wire nails are driven through the bottom and end bars, as shown by the diagram No. 1. Afterward the points of the nails are turned up in the form of hooks.

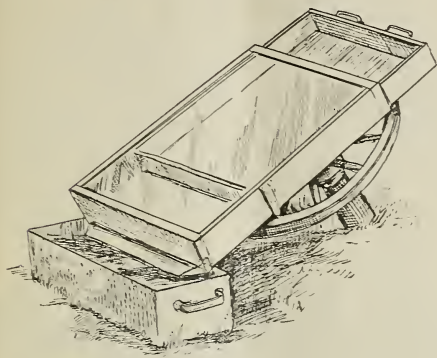
The first operation in wiring a frame is to form a loop on the end of the wire. Hold said loop in the jaws of a pair of pliers, and give it a neat twisting, with the simple little tool shown in Fig. 2. Fig. 1 shows how the wire is applied.



REVOLVING STAND FOR PAINTING HIVES.

Another new idea I found at this busy headquarters was in the economical painting of hives. The hive is mounted upon a revolving platform. The paint-pail rests on a little shelf in front, and all sides of the hive can be painted without moving from the one position.

New ideas stick out quite prominently in the construction of his sun wax-extractor, and it is a genuine novelty. An old wagon-wheel and half of the axle, that have seen their best days, are used for a foundation. The end of



CART-WHEEL SUN WAX-EXTRACTOR.

the axle is planted firmly in the ground, and the wheel upon it is free to revolve. The extractor is mounted upon the wheel, and a light pressure in either direction moves the extractor and contents in direct range of the sun.

It is also so constructed that the filling with cappings or the removal of the wax can be affected without removing the glass cover. The way it is worked is shown in the drawing.

In conclusion I would say that, should any bee-keeper call upon Mr. Fray, he will be used courteously; and should the call be made during the extracting season he will be found "skinning" combs at the old stand.

[I have been surprised over and over again in my travels over the country to find here and there a bee keeper extensively engaged in the business, well read, progressive and energetic, and yet unknown as such to the bee-papers or to their readers. Were it not for the fact that they subscribe for all the best of them, they could not be up to date. While I have been fortunate in finding a few of these fellows, Mr. Rambler has found a good many more. So far in my experience they have been perfectly willing to give us of their ideas, but are very little inclined to "write for the press," either because they think they "can not write," or because they are too modest to do so.

Elsewhere Dr. Miller refers to a portable house-apiary. While Mr. Fray's is a honey and extracting house on wheels, the German wagon combines the extracting-house and the house-apiary in one. I suspect that, some time in the future, we shall use portable house-apiaries and portable honey-houses in a way that we would not dream as possible now. Elsewhere in this issue I have also shown that the Germans are prior in the use of steam wax presses. I know they have been many years ahead of us in the use of portable house-apiaries, of which Mr. Alberti's wander-wagon is a good example. By the by, the name "wander-wagon" is very express-

ive in English, for I suppose it does do a great deal of wandering—not aimlessly, perhaps, but into fields where "mellifluous sweetness" would go to waste except for the presence of the wanderer. One objection to these portable apiaries in the United States is the frequently bad condition of the roads.

We have for years used in our paint-shop the revolving table for the painting of our hives. The plan is all right.

The method of wiring is quite similar to the Keeney method which we used some years ago, but which we have since abandoned for the horizontal wiring which we like better.—ED.]

INCREASING THE HONEY CROP.

Red Clover, etc.

BY F. GREINER.

Three ways present themselves to the progressive bee-keeper by which he may hope to attain better results, reap greater profits from his apiaries, and thus better his condition generally.

1. He may adopt better methods. We all aim to do that.

2. He may improve his stock of bees. Many bee-keepers work along this line, and some improvement has been made. But it would seem to me that we have made no more than just a beginning in this direction.

3. The last, and as difficult a way as any, is to provide our bees with better pasturage, introduce superior honey-plants, and improve the honey-plants already present, in such a way as to make certain but inaccessible sweet treasures accessible to our bees.

The moving of our bees into buckwheat-fields may be regarded as an effort in this direction. Also the scattering of sweet-clover seed along roadsides, etc.; but scarcely any attempt is being made to change the flowering-tubes of certain honey-plants to adapt them to our bees. The honey-plant which, above all others, presents itself to us for this improvement is the common red clover. Several years ago I ventured to make the assertion in *Farm and Fireside*, "Should we succeed in procuring a bee able to extract all the honey or nectar from the red clover, honey would become so plentiful that it could and would largely take the place of sugar for sweetening many articles of food, and that it could then be produced cheaper than cane or beet sugar." I believe this now; and the same result would be attainable by shortening the blossom-tubes of the clover. But this kind of work will of necessity have to be consigned to experts in such work. Perhaps our experiment stations may help along this line. Mr. Hasty says that he has not been very successful so far. Mr. Wuest, of Germany, a botanist of reputation, writes in the *Leipziger Bienen Zeitung* of his experiments in the same directions. I believe it will interest the readers of GLEANINGS to hear what he has to say. He writes in substance:

"There are many plants which secrete nec-

tar abundantly; but on account of the peculiar shape of their blossoms this honey can not be reached by the honey-bee unless the atmospheric conditions are very favorable to honey secretion, causing the sweet secretions to rise high enough to become accessible to the bees. It is then possible that they may have a good harvest from such a source, although they can appropriate but a small portion of the secretion. Sometimes a cunning little beetle cuts through the corolla of certain flowers near the bases where the nectar is hidden, to obtain the same. When, afterward, this oozes out through the opening, the bees find it and make regular visits. These observations have been verified by Dr. Muller, Vogel, and others.

"The abundant honey secretion of red clover (*Trifolium pratense*), and a pea variety (*Vicia villosa*) induced me to experiment with these to obtain new varieties by hybridizing varieties which might have blossoms with accessible nectar-glands. The crossing of the red clover with *Trifolium repens* and *Trifolium hybridum* gave me several new varieties with sufficiently short tubes; but in other respects as forage-plants they were inferior to the red clover.

"There are a multitude of varieties of the clovers scattered all over the world. We need to select only the proper one for crossing with the red variety. The scheme is not without a promising future.

"By crossing the *Vicia villosa* with suitable varieties I have obtained several crosses that meet all my expectations. The flowering-tubes are shorter and wider, so that our common bees can reach the nectar-secreting glands without difficulty. As foraging-plants they are superior to the parental stock. I think I shall be able to furnish some seed in the near future through a seed-house, as I am not in the business myself."

I am aware of the efforts now being made to produce long-tongued bees. The evidence produced so far might almost lead us to say, the longer their tongues the more honey the bees will store. I shall be slow to accept this as a fact. It stands to reason that a bee with a tongue only $\frac{1}{16}$ inch long can not gather as much honey from red clover as one with a tongue $\frac{3}{16}$ inch long, or almost twice as long; but I have often examined red-clover blossoms, and it seemed to me that, even with a tongue $\frac{1}{4}$ inch long, the nectar in the red clover could not be reached. I believe it would be well for us to concentrate some of our energies upon the production of short-tubed clovers, and thus shorten the route at each end.

Naples, N. Y.

[I have more hopes of lengthening bees' tongues than of shortening the corolla-tubes of clover; yet I would by no means disparage any effort looking toward the latter. See editorials.—ED.]

THE NATIONAL BEE-KEEPERS' ASSOCIATION.

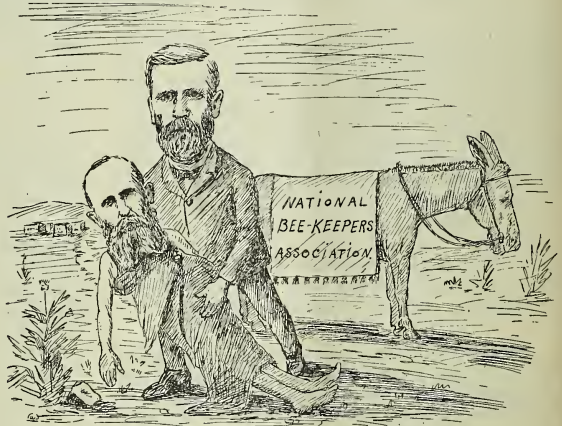
An Interview with Mr. Smith Concerning it.

BY CHALON FOWLS.

I have been thinking lately of the pressing need at this time of bee-keepers standing together for their protection in their mutual interests. If they don't, they are likely to be defrauded of their rightful reward of their honest toil. I believe that the National Bee-keepers' Association, if properly supported, can now do a great work toward putting the business of honey-production on a paying basis. So I resolved to appoint myself a committee of one to stir up the brethren on the subject, and here is an account of the first interview.

"Good morning, Mr. Smith."

"Why, good morning, Mr. Fowls. Come right in. Glad to see you and have a talk. Well, what's the last hobby? You generally have something, even in the winter."



THE GOOD SAMARITAN AND THE MAN WHO WAS WOUNDED AND LEFT HALF DEAD.

"Well, Mr. Smith, I came over to see if I couldn't get you to join our National Bee-keepers' Association. We are doing a kind of work now that I feel you would like to have a share in."

"Of course, I am interested in any good work, Mr. Fowls. What is it?"

"Why, just this: A brother bee-keeper was in trouble. He was beaten in court because of ignorance, prejudice, and spite. Being a poor man he could not afford to appeal the case, as the expense would be too great. Then our Association came to his aid, and, like the good Samaritan, helped him by paying his expenses, and in other ways, thus setting him on his feet again. Was not that a good work?"

"Oh! I see. You refer to the lawsuit of the Utter brothers. Yes, that is a good work, not only that it helped the man by the verdict giving him the protection of the law in his business, but it will help all the rest of us in the business by establishing a valuable prece-

dent in law. But if I join now I shall be too late to help, anyhow."

"Oh! but the case may be carried up still higher; and, besides that, if there is a large increase in membership, and consequently a larger sum in the treasury, we shall be in a better position to protect bee-keepers' interests in other ways."

"Well, you can send in my name for membership, and here is the dollar. It will be ready, if needed, to help carry on the fight; but if not, it can go to replace one of those already taken out. It goes to pay for a *real service* in either case, for we don't want to be at the mercy of every ignorant fruit grower who may want to go to law with us."

Oberlin, O.

[For the information of some of our friends who may not be able to understand the picture, I would explain that Secor, our genial General Manager, is represented as the "good Samaritan," and the man whom he is helping, and about to put on the faithful animal that will carry him safely out of trouble, is Mr. Utter. In the light of past events there is more of truth than fancy in the picture, and I hope those of our readers who have not yet joined the Association will do so at once. Send \$1.00 to Eugene Secor, Forest City, Iowa, and thus help along the good work. It may be that you will be the man to fall among thieves.—ED.]

STRENUOUS QUEEN-REARING.

Read before the California State Bee-keepers' Association.

BY J. H. MARTIN.

In these twentieth-century days we hear much about strenuous living and working. I suppose strenuous is only another term for high pressure, and we have had high-pressure farming, high-pressure poultry-rearing, high-pressure commercialism, and high-pressure many other things; but I have never heard much of high-pressure bee-keeping.

High pressure is, however, too much out of date to apply to twentieth-century bee-keeping, and "strenuous" is the term; and I have an idea that, to commence at the root of the matter, we need a more strenuous queen-rearing.

Let us consider the subject. During the past season I found a strain of bees in the apiaries I was managing that were so far superior to the rest that, had the bees all been bred from the queen of that colony, our honey crop would have been increased by several tons.

The discovery that this strain were such good rustlers for honey was not made until the season was well advanced; and now, in order to get the full benefit from that strain, it must be gradually diffused through the whole apiary.

When I find a strain of bees like those mentioned I am impatient to get the whole apiary up to that standard, and the need of queens when I want them, and the lack of time to

rear them when my energies are devoted to the extractor or at other work. In fact, I am strenuous at something else, and need an extra-strenuous plan to supply the queens.

I think every bee-keeper present has observed that not one apiary in a hundred is properly queened, and I think we all have a dim suspicion that our own apiaries are not up to the standard we desire. We hear of golden-yellow queens, leather color, long tongues, and even \$100 queens. To make a good start we should like one of those \$100 queens; but after considering the lank condition of our purse we finally conclude to send for a dollar queen, and that is about as far as we get this year; but next year, if we have a big crop of honey, we will do better. Our dollar queen may be either good, bad, or indifferent; and, whichever it is, we do not get much out of her.

Then you know that queen-rearing has become a great science of late years. Alley's plan used to be good enough for me; but now it is dipping-sticks, tooth-picks, transfer of royal jelly, transfer of larvæ, and putteration until your head swims. Oh, it is so strenuous!

But I see light at last. When I read Pridgen's plan of making queen-cells by the peck and queens by the quart, a great load seemed to be lifted from my mind, and I formulated the following more strenuous plans for queen-rearing.

In the first place, every bee keeper needs the very best queens that can be reared—best in hardiness, prolificness, and notably in the honey-gathering qualities of her progeny.

In the second place, there are but few bee-keepers who have the combination of qualities that will insure their success in modern strenuous scientific queen-rearing. Now, my plan is that a certain number of bee-keepers in a given locality turn their queen-rearing over to an expert in that line of work. A contribution from each bee-keeper interested would enable the expert to commence operations with the best available stock. Each bee-keeper in the district should agree to take a certain number of queens per annum; and, having a definite number of queens to rear, and a large number of them, the expert could rear them at a minimum cost to the bee-keeper, and at the same time with a good profit to himself.

A person devoting his entire attention to queen-rearing will strive to improve his stock, and his patrons will receive the full benefit, or the patrons in this case would have an influence in keeping the stock up to an approved grade.

Our usual plan is to send for a breeding-queen and rear daughters, granddaughters, and great-granddaughters from her, and trust to a promiscuous mating with our drones.

Our expert could be so located as to control the mating of queens with selected drones, and the bee-keepers in the district would get queens only one removal from the original, or daughters, and from the very best stock in the country. In our present haphazard way we dilute the blood too much by the many re-

moves from the original stock, and this would be entirely avoided through our expert queen-rearing station.

This plan is in line with the division of labor which at present is recognized as the most effective way for accomplishing great results; and the question is, "Are the bee-keepers ready for this advance in their methods of management?"

I will leave the question to you for solution, believing that, if it is put into practice, the honey-producing power of our apiaries will be advanced many fold.



BEES DYING OF OLD AGE; SO-CALLED MOLD
ON THE HIVES DURING WINTER; IM-
PORTANCE OF HAVING HIVES
NEAR THE GROUND.

A knock at the door; and, opening it, I find the mail brought by a neighbor, as I often send for it (a distance of nearly a mile to our postoffice) when I am too tired or busy to go myself. "Many thanks" is what I say as the neighbor passes on his way. In opening the letters I find one from Maine, wishing me to engage in conversation with him in GLEANINGS something after this fashion:

"Can you tell me what ails my bees? I find nearly a quart of dead ones under one hive. This hive has plenty of honey in it, but there appears to be a slight mold on the combs."

"From the description you give I should say that there was nothing ailing them more than is the common lot of all bees under like conditions."

"What do you mean by like conditions?"

"My idea is that the colony of which you speak was composed largely of old bees last October, which, as soon as the cold weather of winter came on, died from lack of necessary vigor for enduring such weather as we have had during the past month of February, a month in which it has not thawed a particle in the shade during the whole of it, while from zero to 12° has often been registered. And, to make it more severe, we have had a very high wind more than three-fourths of the time, with the air so filled with snow that we have all the way from two to ten feet of snow in our roads, which has obstructed travel to that extent that we have had only two mails during some of the weeks."

"But, just think! a whole quart from this one colony."

"A quart of bees is quite a large number to die by the first of March; but in cases where there are no bees hatched after the first of September, as is often the case in this locality, especially after a dry summer as was the last, a large mortality may be expected before the bees have a chance at 'house-cleaning' in the spring."

"Well, I did not suppose bees ever died like that unless there was some disease that carried them off."

"Oh, yes! they frequently do, as all familiar with the bee-literature of the past well know. But there is something here that you have overlooked, which is that dead bees make a much greater show than live ones, as their legs and wings are rigid, causing them to lie loosely in a measure or dish, or on the bottom-board to the hive, thus leading the beholder to think there has been a very great loss, when in reality it is not so great after all."

"Well, I hope it is as you say, and that the colony will pull through all right. But how about the mold?"

"Regarding this, from the idea I have gained from your description I do not think it will do any harm, even if you have not been deceived in this matter, which I think is very likely to be the case; for during winter, when frost forms about the inside of the hive, the vapor from the bees, together with the congealing of it in the remote parts of the hive, gives a bluish-white appearance to the surface of the combs, which, by the inexperienced, is often mistaken for mold."

"I hardly think I could be mistaken in this. Do you?"

"Well, perhaps not; but I have had novices repeatedly come to me during the winter season of the year, declaring that the combs in their hives were 'all moldy,' and asking what they should do. I told them that I did not think their combs were moldy, but could not convince them that they were not right till I had taken them to the apiary and shown them combs in my hives having the same appearance, which, after a close inspection, showed no real mold. Yes, and some apiarists who were not novices have had to be convinced in this way, W. S. Pender, of Australia, being one among this latter number. With him I even had to take the combs out of the hive and let him rub them and smell of them before he would be convinced."

"You may be right here, and I will find out for certain the next time I look at this colony, even if I have to pursue the same course Mr. Pender did. But I should have stated that the colony we have been talking about was in a rough bee-house, the hive being packed with buckwheat chaff. Is this right?"

"This is all right providing you have it so arranged that the bees can fly should there come warm days in winter. If no arrangement has been made so that the colony can thus fly, the putting-away of bees in this way is faulty."

"But bees in the cellar have no chance for a flight."

"I know they do not. But here the case is very different. In the cellar the temperature is kept some 12 to 15 degrees above the freezing-point, so the bees consume very little of their stores to use as fuel, consequently they do not consume more honey than their bodies can hold the excrement from while they sojourn in the cellar. But left in an outdoor bee house, no matter how well packed, they

must 'burn' much of the stores used to keep them warm; hence a large accumulation of excrement, which, with no chance of voiding, brings on uneasiness, resulting in the breaking of the cluster, bee-diarrhea, and death, where no opportunity for flight is presented. Bees placed in any room which goes below the freezing-point, with no chance of flying during the winter, are not nearly so well off as if left on their summer stands."

"I had not thought of this part. This colony of bees is near the ground, and I thought that the trouble might lie here. What do you think about this?"

"I think you need have no fears on this account, for none of my hives are raised over three inches from the ground, where wintered outdoors, nor have they been during the past 28 years."

"But is it not well to have them higher than that? Some of mine are set up 18 to 20 inches high."

"There are a few reasons for preferring them higher than this, but not nearly as many, nor as valid ones, as there are for having hives rest near the ground."

"Will you give me some of the reasons for having them rest so low as three inches?"

"The greatest reason of all for having hives near the ground is that, in the spring of the year, one bee is worth more than ten later on when the hive is filled with bees, and the weather is almost warm enough for the perfecting of brood without any bees at all; and the placing of hives up from the ground is one of the greatest death traps for bees in early spring which can be invented."

"I do not see how."

"In early spring the bees are very active, looking toward the oncoming season, and often go out in search of pollen and water when it is so cold that, should a cloud suddenly come over the sun, they can scarcely get home before becoming benumbed with the cold. Then we have high winds at this season, which, in addition to cool weather, very nearly tire them out before reaching their hive with their loads of water or pollen. When they thus come home, if the hive is high up from the ground, the wind carries them down, or they miss the entrance to the hive, and fall under it, in the shade, never to rise again; while with the hive placed low, and with an entrance-board reaching to the ground, so they can not possibly fall under the hive, they are enabled to travel up and into the hive, when they are too much chilled to fly further. I have seen scores and hundreds of dead bees under and about hives standing high, which had died with pollen on their legs, while with hives placed low scarcely a dead bee could be found. But it is getting late, and I have still more letters to open, so I will say come again at any time when you have more questions."

[While I agree (generally do), with all you say, I particularly indorse your last paragraph. We have our hives on low hive-stands, four inches high; but these stands have a slanting alighting front board of easy slope, reaching from the ground to the en-

trance. Formerly our stands had *perpendicular* fronts without alighting-boards (we have some yet). It was and is apparent that, in the spring, with such stands, there is quite a loss from bees not being able to get into the hives. This was particularly noticeable last spring when we had the opportunity for direct comparison. Yes, sir; it pays to have good alighting-boards that afford an easy ingress to the hives.—Ed.]



A DOUBLE-BLAST SMOKER.

The bellows consists of one long board and two short ones mitered together, and hinged to the long board at the center with a piece of leather or sheepskin, fastened to the long board at A, Fig. 2, by both glue and tacks, and in the same way to the opposite short one at B, thus making an air-tight connection between the two compartments of the bellows. There should also be a staple in each side, driven into the long board and the strengthening-block, where the short boards meet, to hold the bellows from spreading apart and

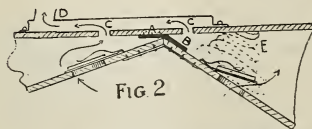


FIG. 2

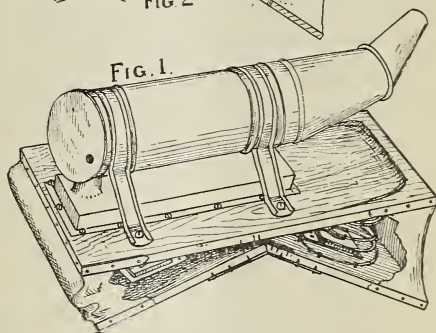


FIG. 1.

PASSAGE'S DOUBLE-BLAST SMOKER.

loosening the leather hinge. A coil spring is in the end of the bellows, held in the hand, and a small spring on each valve on the long board; and although the blast may not be quite as strong as on some others you can throw a cloud of smoke five or six feet, which is far enough for all practical purposes, and that continually, for the least pressure on the bellows sends the air through the fire-barrel; and when you let up, the air starts from the other side. There should be a $\frac{1}{4}$ -inch hole in the back end of the fire-barrel for a draft. It also keeps it from sucking smoke into the bellows. If you want the fire to go out, put a little plug into the hole and it will do so in a very few minutes. I prefer it to the intermittent, because I can get more smoke just where

I want it, and keep it coming there easier than with any other, as the least pressure on the bellows keeps it coming. BENJ. PASSAGE.

Stark, Mich., Jan. 3.

[Mr. Passage sent us one of his smokers to try. The blast, I should say, is not continuous, but a rapid series of little whiffs; that is to say, there are two blasts to every movement of the fingers instead of one, as in the ordinary style of smoker. But the blasts are so much weaker that for myself I should prefer a single blast, as the slow movement of a large bellows furnishing a long-range stream of smoke, is, to me, more satisfactory than the intermittent short whiffs of a double bellows.

Another objection is the weight of such a bellows. It strikes me that, some seven or eight years ago, we illustrated something similar to this, but just now I can not give the place.—ED.]

CAGING QUEENS TO PREVENT SWARMING.

Will you please give me a little light on caging queens to prevent having a lot of consumers only, instead of honey-gatherers? What are the greatest objections to the plan? Our honey here comes only from the bloom of fruit and almond, and, of course, comes very early, and doesn't last long. J. UMHOLTZ.

Los Gatos, Cal.

[The practice of caging queens for the purpose of preventing swarming is carried on successfully by only a very few bee-keepers, comparatively; and even these few acknowledge that it involves a great deal of work. In the first place, there are many bee-keepers who, after having tried it, believe that colonies with caged queens, or colonies without queens, do not work with the same energy and vim as those that have been allowed to swarm once. It seems to be pretty generally agreed that the one swarm plan results in more honey. But there are localities where it is not desirable to have a lot of consumers after the honey-flow is over; and in such the caging or removal of the queens has the advantage that it cuts down the force of consumers when there is nothing for them to do.

The *modus operandi* is as follows: Just at the approach of the honey-flow, and before the bees begin to swarm, the queens of all the colonies in the yard are caged. Any flat wire-cloth cage may be used—something that can be slipped down between the frames or on top of the frames under the hive-cover or quilt. These cages may or may not be provisioned with Good candy. Ordinarily I would recommend supplying them with food. But the bees will take care of the queens, feeding them through the wire cloth, food or no food. I have had queens which I had forgotten, caged for three months over the brood-frames, and yet the bees were taking care of them. So much for caging.

All cells, if any, at the time of caging must be destroyed. In eight days more the cells must be destroyed again, and again in eight days. Not a cell must be missed; and to make a sure job, it is, perhaps, better to shake

all the bees off the frames, and then destroy the cells, as they can be easily seen. But this destruction of cells every eight days involves an enormous amount of work. While, of course, it renders unnecessary the attendance of an apiarist during the swarming season, yet the owner of the bees must go down to the yard and spend practically a whole day in the apiary, looking over the combs and destroying the cells. A week hence he must go through the operation again. As this work must necessarily be done during the height of the honey-flow, it comes when the bee-keeper can the least afford the time. Be that as it may, he has, perhaps, saved the expense of a man in the yard, and saved the expense of rearing a lot of useless consumers when they can be of no use to him after the honey-flow. After the swarming season, queens may be released by simply opening the cage. Of course, five or ten per cent of them may be killed. If the queens are valuable, I would recommend introducing in the regular way.—ED.]

A TERRIBLE AFFAIR.

H. T. Gifford was shot Feb. 16th by C. D. Reed, a renter. There had been some dissatisfaction about the crops, but no heated words for over three weeks. Reed used a shot-gun loaded with No. 4 shot, and fired without warning, at a distance of 50 feet. Mr. Gifford was unarmed, and was pumping water for his horse. He saw Reed when he aimed, and threw his head and body behind the pump and platform. This saved his life, but he is badly wounded. He is 62 years old, and most highly respected by the residents of Indian River, as well as in his native State, Vermont.

Vero, Fla., Feb. 22. MRS. F. C. PRANGE.

PROSPECTS GOOD, BUT FEW BEES IN CALIFORNIA.

Don't put the producers of honey on nettles over the prospects of a big honey crop in California. The season may be good, but where are the bees to store the honey? The empty hives echo, "where?" I would gladly sell 150 good clean empties in the southern part of the State at 10 cts. each—some never used.

H. I. MORSE.

Palo Alto, Cal., March 5.

A LARGE AVERAGE PER COLONY FROM A BEE-KEEPER OVER 75 YEARS OLD.

My father, J. H. Melov, of Wyeville, Wis., during the season of 1900 produced from 42 colonies 8960 lbs., an average of 213½ lbs. per colony, and increased by natural swarming to 61 colonies. All had plenty of stores left for winter, not extracting any from the brood-chamber. Previous years we kept about 200 colonies; but being in the 75th year of his age he is not able to care for as many.

He says this is the largest average yield he remembers getting. It was gathered mostly from goldenrod and buckwheat. Did any one ever do better? I have more bees, but my average was not as large.

E. L. MELOV.

Tomah, Wis.



NATIONAL BEE-KEEPERS' ASSOCIATION.

OBJECT:—To promote and protect the interests of its members; to prevent the adulteration of honey.

OFFICERS:—E. R. Root, President, Medina, O.; R. C. Aikin, Vice-president, Loveland, Col.; Dr. A. B. Mason, Secretary, 3512 Monroe St., Sta. B, Toledo, O.; Eugene Secor, Gen'l Manager, Forest City, Ia.

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FEES:—Annual membership fee, \$1.00. Remittances may be sent here or to General Manager as above.

In our issue for March 15, page 246, I referred to H. G. Acklin as if he were President of the Minnesota State Bee keepers' Association. Mr. Acklin writes that this is a mistake, and that Mr. Wm. Russell is President, and that he hopes I will make the correction, which I cheerfully do.

GLEANINGS ENLARGED.

The large amount of advertising and of excellent matter that has been coming in of late, has made it necessary to nearly double the size of GLEANINGS. For several issues back we have been giving 16, and last issue 20 extra pages. This number has 16 extra pages again. The great variety of the illustrations that we are and have been giving will enable those of our busy readers to take in a great deal of valuable information at a few glances. For example, I take several illustrated papers, and find that I can almost keep track of the war news in different parts of the world by reading scarcely a line except those that appear at the bottom of the pictures. The history of the old civil war is pretty faithfully told by the pictures alone in the old numbers of *Harper's Weekly*, published from 1861 to 1866.

BEEES AND FRUIT IN THE FARM PAPERS.

In the last issue of the *Farm Journal* there is a very full and comprehensive report of the matter we printed on page 152, concerning the jaws of worker-bees and those of wasps, and the inability of the former to puncture the skin of sound fruit. The illustrations have been reproduced, and the whole matter has been given very strong prominence in this most influential farm paper. It has a subscription-list of over half a million; and such matter going before farmers and fruit-growers and bee-keepers will prove to be of inestimable value. Besides the article in the *Farm Journal*, some articles of a similar nature have been published in other agricultural papers, with the result that the decision of the celebrated trial at Goshen, completely exonerating the bees, has gone far and wide over the land. The National Bee-keepers' Association has more work of this kind, and it should re-

ceive the substantial encouragement of bee-keepers everywhere. Let those who have not renewed their membership do so at once; and those who have never joined, let them get into line with a dollar bill. Such splendid results as were secured at Goshen can not be secured without somebody paying for them. Send a dollar to Eugene Secor, Forest City, Iowa.

CLOVER AND LONG-TONGUED BEES; HOW LONG MUST BE THE TONGUE-REACH?

FRIEDEMANN GREINER, on page 289 of this issue, expresses some doubt as to whether bees having a tongue-reach of $\frac{1}{4}$ inch would be able to get a very large percentage of the honey from red-clover blossoms; perhaps he is right, but late last fall we secured some red-clover heads that seemed to be fair specimens of heads in the height of the season, although they might not have been. The measurement of the corolla-tubes of these heads showed a variation of from $\frac{1}{8}$ to $\frac{3}{8}$ inch. The greatest lengths were in the very center or top of the head, and would comprise in number only about one quarter, I should judge at a rough estimate, of the number of the shorter tubes, ranging from $\frac{1}{8}$ to $\frac{1}{4}$ inch in depth. I reasoned this way: That if we could breed bees having a tongue-reach of $\frac{1}{4}$ inch, we should be able to get all the nectar out of $\frac{3}{4}$ of all the tubes, and a very large percentage of the nectar in the tubes $\frac{3}{8}$ inch long or more. If the clover heads that we measured last fall were a fair average, and if my rough estimate is reasonably correct, then bees with a tongue-reach of $\frac{1}{4}$ inch ought to be able to get three-fourths of the honey, I should say, from the heads of ordinary red clover.

While I believe we ought to work toward a red clover with shorter tubes, yet knowing as I do the tendency of all varieties to revert back to the original types, especially of the clovers, my hopes are not as strong in this direction as they are in the lengthening of bees' tongues. Here is the difficulty, as I view it, with the red clovers: Suppose half of the farmers have sown the short-tubed variety. The farmers in the other half of the vicinity sow the red clover of their fathers. The bees would mingle the pollen of the older with the newer type, with the result that the last named would work backward toward its old length of tubes.

While there would be the same tendency to sport backward in the case of bees, yet it seems to me we can control our bees better than we can control the clovers of the farmers in our vicinity.

BEEES WITH LONG TONGUES; POSSIBLE AND PROBABLE DISAPPOINTMENTS.

A YEAR or so ago there seemed to be a great rage for five-banded or yellow bees; and now nearly all the breeders in the country are advertising long-tongued stock. This is right and proper. But there is danger that many who get queens of this blood will be disappointed, and in the end the whole business will be condemned. It is hardly probable that even a large percentage of the queens

from long-tongued stock will be duplicates of their mothers. The young queen may have been mated to a drone whose bees would be of the short-tongued kind.

It is only proper to sound a note of warning that the general bee-keeping public must not be disappointed if they get some untested queens that do not come up to their expectations. The breeder who sells an untested mother of long-reach stock sells her for just what she is—a queen that has not yet been tested. If none of her bees have hatched, there is no possibility of knowing what the length of her bees' tongues will be.

Again, we are not positively sure that the amount of honey a colony will gather is in direct proportion to the length of the tongues of its bees. There have been a number of reports that seem to point that way; but this season's experiments may show that the yield of honey is dependent on some other important characteristic. In any case, let's not lose our heads.

Unfortunately, the buying of queens, even from the best of breeders, is something of a lottery; but if one will pay enough, and get *tested* stock, he then has some reasonable assurance of getting what he orders. The A. I. Root Co. will, if desired, sell tested queens whose bees will have a tongue reach of a certain specified length—the longer the reach, the higher the price, of course; and I have no doubt that other breeders will do the same, providing they learn how to measure the bees' tongues, or get some one who knows how to do it for them. We will undertake to measure the tongues of any bees of our subscribers for ten cents per cage of one dozen bees. Our Mr. Robert G. Calvert, who does the measuring, very rarely knows whose bees he is measuring. He brings in his report, and I send it out just as I get it from him. Sometimes I measure the bees myself, but more often he does it.

OLD BLACK COMBS AND HOW TO RENDER; THE USE AND ABUSE OF THE SOLAR WAX-EXTRACTOR.

OWING to the prevalence of brood diseases in many localities, such as foul brood, black brood, and pickled brood, many bee-keepers have been casting about for some simple, efficient, and reliable method by which old combs, diseased or of doubtful infection, may be safely and economically rendered, at the same time getting *all* the wax out. Elsewhere in this issue I have presented the very latest and best methods that have been in vogue, not only in this but other countries as well.

In every apiary, besides combs that are possibly infected there are scores and scores of crooked combs, combs with a large number of drone-cells, combs that have been disfigured from cell-cutting, and combs that to some may be too old to get a really nice article of extracted honey, or too old to get full-sized bees. While I believe this last statement is erroneous, yet there are some who believe in it, and for that reason would prefer to melt

up all such. It comes to pass, then, that, in every well-regulated apiary, in the course of a few years there will be a very large percentage of old combs that for one reason or another ought to be rendered up. To put these in the solar wax extractor is a long job, and necessarily wasteful in its results, for sun heat will get only a part of the wax out of such combs, as I know by experience. We could put them through the solar machines and afterward put the refuse into steam wax-presses, or we could put them in boiling water, pressing out afterward, *a la* Gemmill. But better, far better, not use the solar wax-extractor for old combs at all. Such machines are useful only in the handling of new wax, like burr-combs and new combs. While we still sell solar wax-extractors, and are glad to see the sale increase, yet it is only fair to say that their use is limited. For the handling of *old black* combs, steam or hot water, and a *good press*, should be used—otherwise there will be an enormous waste. Mr. Ferris gives a set of figures in favor of a press that are something of an eye-opener; and from some tests we have made here at the Home of the Honey-bees I do not believe his figures are very far out of the way.

THE NEW CALIFORNIA FOUL-BROOD LAW.

WHILE the bee-keepers of Michigan have been and are now working for a foul-brood law, the bee-keepers of California, through their State Bee-keepers' Association, have not been idle. A year ago the California State Bee-keepers' Association, writes Mr. McIntyre, appointed a committee to draft a new bill for the suppression of foul brood. This was done, and a copy sent to every bee-keeper in the State, with the request to either see or write his Senator and Assemblyman, asking their support. The bill was placed in the hands of the Hon. Robert M. Clark, of Ventura Co., who, although a man only 21 years old, yet, on account of his energy and ability, was thought to be the man to see the measure through. The bill passed the House, but the Senate proposed to amend it; but Mr. Clark, on being informed that the bee-keepers opposed the amendment, insisted, even at the risk of defeating the bill, on its passage just as it came from the House. The Senate receded, and the bill became a law without amendment.

This law provides for county inspectors, who shall be appointed by the Board of Supervisors, and who shall receive \$3.00 a day and expenses. In this respect the measure is very similar to the one now in force in Michigan, and which it is intended to repeal, substituting the proposed law providing for a State inspector. It was found in Michigan that the *county* law was largely inoperative, as no one felt personally responsible for ferreting out the disease wherever it might exist. But we must remember that the counties in California are as large as some of our Eastern States, and what might not be operative for Michigan would be just the thing for California. According to the California law there is no limit to the funds that may be used for the

suppression of foul brood, and I suspect that one man in one of the California counties, at least Ventura, would have all he could do. The full text of the law reads:

AN ACT

To Promote the Apicultural Interests of the State of California by providing County Inspectors of Apiaries, and defining their duties, and providing for their compensation, and repealing the act entitled "An Act to authorize the Board of Supervisors of the several counties of this State to appoint Inspectors of Apiaries, and provide for their compensation, and defining their duties, and for the further protection of Bee Culture," Approved March 13, 1883.

THE PEOPLE OF THE STATE OF CALIFORNIA, represented in Senate and Assembly, do enact as follows:

SECTION 1. Whenever a petition is presented to the Board of Supervisors of any county, signed by ten or more persons, each of whom is a property-holder resident of the county, and possessor of an apiary, or place where bees are kept, stating that certain or all apiaries within the county are infected with the disease known as "foul brood," or any other disease which is infectious or contagious in its nature, and injurious to the bees, their eggs or larvae, and praying that an inspector be appointed by them, whose duty it shall be to supervise the treatment of said bees and apiaries as herein provided, the Board of Supervisors shall, within twenty days thereafter, appoint a suitable person, who shall be a skilled bee-keeper, Inspector of Apiaries. Upon petition of ten persons, each of whom is a resident property-holder, and possessor of an apiary, the Board of Supervisors may remove said Inspector for cause, after a hearing of the petition.

SECTION 2. It shall be the duty of the Inspector in each county to cause an inspection to be made, when he deems it necessary, of any or every apiary, or other place within his jurisdiction in which bees are kept; and if found infected with foul brood, or any other infectious or contagious disease injurious to the bees, or their eggs or larvae, he shall notify the owner or owners, person or persons, in charge, or in possession of said apiaries, or places where bees are kept, that the same are infected with foul brood, or any other disease infectious or contagious in its nature, and injurious to bees, their eggs, or larvae, and he shall require such person or persons to eradicate and remove such disease or cause of contagion within a certain time to be specified. Said notice may be served upon the person or persons, or either of them, owning or having charge, or having possession of such infected apiaries, or places where bees are kept, by any Inspector, or by any person deputized by the said Inspector for that purpose, or they may be served in the same manner as a summons in a civil action. Any and all such apiaries, or places where bees are kept, found infected with foul brood, or any other infectious or contagious disease, are hereby adjudged and declared to be a public nuisance; and whenever any such nuisance shall exist at any place within his jurisdiction, or on the property of any non-resident, or on any property the owner or owners of which can not be found by the Inspector, after diligent search, within the county, or upon the property of any owner or owners upon whom notice aforesaid has been served, and who shall refuse or neglect to abate the same within the time specified, it shall be the duty of the Inspector to abate the same, either by treating the disease, or by destroying the infected hives, together with their combs and bees therein.

The expense thereof shall be a county charge, and the Board of Supervisors shall allow and pay the same out of the general fund of the county.

SECTION 3. It shall be the duty of the County Inspector of Apiaries to keep a record of his official acts and deeds, and make a monthly report thereof to the Board of Supervisors; and the Board of Supervisors may withhold warrants for salary of said Inspector until such time as said report is made.

SECTION 4. The salary of the County Inspector of Apiaries shall be three dollars per day when actually engaged in the performance of his duties.

SECTION 5. An Act entitled "An Act to authorize the Board of Supervisors of the several counties of this State to appoint Inspectors of Apiaries, and provide for their compensation, and defining their duties, and for the further protection of Bee Culture," approved March 13, 1883, is hereby repealed.

SECTION 6. This act shall take effect and be in force from and after its passage.

PROF. COOK'S REVIEW OF THE A B C BOOK.

IN the columns of *The American Bee Journal* Prof. Cook has given a review of "Dadant's Langstroth" and "Cowan's Honey-bee," and now follows with a review of the "A B C of Bee Culture." In his usual kindly manner he says at the outset, "Without doubt this book has exerted a wider influence upon the bee-keeping world than any others ever written. Even its rivals can only be joyous in its extensive sale, as they know that, wherever it goes, it goes to help and bless." Coming as those words do from one who is himself the author and publisher of a leading rival work, the publishers of the A B C would be hardly human if they did not feel a warming of the heart at their utterance.

He then proceeds to point out passages in which he thinks he has reason to believe there is error, although admitting the possibility that in some cases he may be wrong. Some of these may properly deserve consideration and correction: in others there may be occasion to take exception to Prof. Cook's exceptions.

First, it is proper to call attention to the fact that the criticisms are not based on the edition issued last January, as one would suppose, but on the *old* edition—the one put out nearly two years ago. As it is, much that Prof. Cook criticises is not in the new book at all, such matter having been either re-written or stricken out altogether.

As to the first error pointed out, there is no error in the book, but the error consists in very careless reading on the part of the reviewer—a carelessness that is hardly excusable, for one expects extreme carefulness on the part of one who points out the errors of others. The A B C, page 2, in discussing what is to be done with second swarms that issue, says in effect that they must be watched, climbed after, and hived. This sentence is *immediately* followed by another which says, "If one thinks this too much trouble, he should prevent having after-swarms as I advise under that head." He ignores the fact that the watching and climbing refers only to swarms that *have* issued, to say nothing of the fact that it would be an impossibility to prevent the issuing of a swarm after the swarm has actually issued. He goes on to give the Heddon as the best method of preventing second swarms. In the edition just out of the press the very next sentence refers to the place where, among other methods of preventing after-swarms, the Heddon plan is given more fully and correctly than it is given by the reviewer. If careless reading is inexcusable on the part of a critic, still less is careless quotation when the exact words are pretended to be given inside quotation-marks. In answer to the question as to what shall be done with a second swarm that has issued, the A B C says, "Candidly, I don't know of any better way than," etc. "Candidly, I don't know any better way to prevent second swarms than," etc., is the way Prof. Cook quotes it. We feel sure that he will say there is no sufficient excuse for interjecting the words "to prevent second swarms" in a direct quotation

where they were neither written nor thought by the author of the book.

Prof. Cook objects to the statement that alfalfa honey is probably superior in quality to any other. He claims to be something of a judge of honey, and thinks alfalfa no better than clover, linden, sage, and perhaps others. It is a matter, not of judgment, but of taste. The best judge *might* prefer a flavor that no one else would fancy. The criticism, however, is a valid one. In matters which appeal entirely to taste, it is unwise to make sweeping statements.

Speaking of alfalfa the A B C says it takes about three years to get it to its best yield. Prof. Cook makes the pleasant correction that in California the maximum yield is often got the very first year in the later cuttings.

The reviewer thinks it is putting it too strong to hint that bees gather from the dry hay. The simple truth is told that "one man reports so much sweet in it that he has seen bees by the thousand working on the dry hay in the spring."

Speaking of this matter, Prof. Cook says, "This is putting it altogether too strong. Still, I do not think that too much can be said in favor of alfalfa, for it is a marvelous crop." The good professor will probably indulge in a quiet smile when he sees these two sentences side by side. "You are saying altogether too much for alfalfa," and "You can not say too much for alfalfa." Which is one to believe?

Prof. Cook objects to the definition of digestion given by the author, saying, "This is given as a question [what can be meant by that?], but he was not happy in his selection of authority." Not all will agree as to this, seeing the authority selected was no less than the able and careful T. W. Cowan. Prof. Cook teaches that "digestion is rendering the food osmotic."

Our reviewer says "malpighian" should be "malpighian." So it is in the latest edition, and one would hardly suppose an older edition should be the one reviewed. But his correction needs further correction, neither the book nor the critic being right, for "malpighian" should be "Malpighian."

The A B C says, "The blacks are also easier to shake off combs in extracting time, and for that reason alone some prefer them, or hybrids, to pure Italians, which can hardly be shaken off." Prof. Cook says, "I have very little trouble to fell at one shake every Italian bee from the comb if the latter fully fills the frame." If Prof. Cook can shake *every* bee from the frame at *one* shake, he will confer a lasting favor on some of the veterans if he will make the process known. In spite of their shaking off so easily, he considers they stick tighter than the blacks, and prefers them on that account, for the best men stick closest to their homes. There are times when one wants bees to stick by their comb, and then he will prefer the tighter grip of the Italians; but at times when one wants bees to shake off, as in the case mentioned, will one not prefer that the bees he is trying to shake off shall shake off rather than to stick on?

Prof. Cook says, instead of Mr. Benton spending years in India he "was in India only a few days." In relation to this point I have a letter from Mr. Benton, who says, "I left Cyprus for India in December, 1880; returned to Cyprus in May of the following year—absent just *five* months." While the statement in the A B C was not strictly correct, Prof. Cook is no nearer the truth, for he has gone clear to the other extreme.

He thinks it unfortunate that the A B C uses the term "worm" and "grub" as synonymous with larva. That criticism is worth considering, at least so far as to avoid calling a bee a worm during its early life. Whether much more than that could be accomplished is questionable. To his credit be it said that Prof. Cook is consistent in that he does not speak of wax-worms, but calls them larvæ or caterpillars. It is feared that, if a bee-keeper were to say that caterpillars had eaten up his combs, he might be laughed at. It is very likely, too, that for many years to come good scholars will say that wormy apples have worms in them. Moreover, when no entomologists are around, an insect-larva is a worm, for so the dictionary says. So is a larva of any insect a grub, by the same authority.

Instead of pollen and honey partially digested being fed to larvæ, Prof. Cook says it is pollen perfectly digested, with or without the addition of honey. When doctors disagree, who shall decide?

Prof. Cook objects to calling "viper's bugloss" blue thistle. He says it belongs to the borage family, is no thistle at all, and is like borage in being no serious pest—all of which he should have noticed is already told in A B C. But blue thistle is one of its popular names, so given in the dictionary.

He thinks drones from laying workers are as large as any, and it is likely that is true when they are reared in drone-cells.

"It is very doubtful indeed that unimpregnated eggs will ever produce workers," says the reviewer. It is not said in A B C that they ever will.

He thinks the word fecundate or impregnate should be used rather than fertilize. According to the dictionary, either is right.

Referring to feeding at night, Prof. Cook says, "Our author recommends this night work to prevent robbing." If he will read *carefully*, he will see that it is not recommended, only reported as being accomplished, and that feeding *toward* night is recommended.

Prof. Cook believes the A B C wrong in teaching that honey from apple-bloom has a strong rank taste like that from cherry-blossoms. He may be right; but this, like some other points to which he refers, was corrected in the edition just out.

In conclusion, we fear that Prof. Cook, overburdened with work like some of the rest of us, has not taken the pains to ascertain whether he himself is always correct upon all points. He is a pleasant writer—one whom the fraternity regards as authority; and whatever else we may say of him, he is actuated by the kindest of motives—a spirit that esteems others better than oneself.



Then said Jesus, Father, forgive them for they know not what they do.—LUKE 23:34.

The last state of that man is worse than the first.—MATT. 12:45.

I saw a statement recently in the papers, to the effect that three-fourths of the men in the United States use tobacco more or less. In my recent trip through the South I was impressed that something of the kind is true, especially if we include the colored people. Since my trip through the Southern States six years ago, there has been a very great increase in the use of tobacco among the blacks, and, I fear, among the whites, especially the poor classes that are least able to afford it. When so many are against me, Satan sometimes suggests I had better give it up and "let the world wag." But the voice of Christ Jesus says, "Not so." He was content, when here on earth, to work day and night, almost, without being weary, even though the multitudes were almost *all* against him. Some skeptical writer has said that Jesus never had more than a mere handful of followers, comparatively, at any time; that he was disappointed at every turn, and that his whole plan and his lifework were a failure. Dear me! Did it never occur to this poor foolish writer that he was only stating what the prophet Isaiah said, only in a different way? "He was despised and rejected of men; a man of sorrows, and acquainted with grief."

I might be disheartened and discouraged were it not for the constant stream of kind and encouraging letters that come in the mails every day—not only from men and women, but even children have told me how much good these Home Papers have done them. It seems as if human language could not be framed into sentences more touching and pathetic; and I would answer these kind letters as fast as they come, thanking the writers for their (as it sometimes seems to me) extravagant praise of my poor efforts, did time permit. But if I did this, as I feel prompted to do, I should not have time to write the Home Papers nor to advise and suggest to the hundreds who are in trouble. Therefore I have faith, even though compared with the great outside world I seem to be but a little speck or a mere bubble in a great wide sea. My Home Paper in the last issue was cut short for want of space; but I have something more to say right along in that same line. A few hours after having that talk with Mr. Buder I was thrown in company with the postmaster of Wewahitchka; in fact, we rode together one whole day on the steamer. Alluding to my talk on Sunday evening, he said something like this:

"Mr. Root, you struck a point that is needed right here in the South more than any other one thing I know of. In fact, you little dream of the harm tobacco is doing among the old and the young, male and female. I

keep a store, as you know, as well as the post-office. There is quite a class all around us who work from hand to mouth. Yes, it is worse than that. When a man gets a job, before he can go to work he tells his employer he has got to have something to buy victuals with. He can not work until he has had a good square meal. This is more or less true of the whites as well as of the blacks; but more often, of course, of the blacks; and an employer has very often to give a man an order on the store before he can get him to go to work. The orders come to me every day, reading, for instance, like this: 'Let Mr. — have \$1.50 worth of groceries, and charge it to my account.' Then I say, 'All right, Mr. —, what do you want for the \$1.50?' The reply is almost invariably something like this: 'Well, let me see. You may give me 50 cents' worth of tobacco.' 'Here is your tobacco—what next?' 'Well, I guess I will have to have 25 cents' worth of snuff.' There, you see, Mr. Root, half of the \$1.50 that he was to have for absolute necessities for his family goes for tobacco and snuff, and the rest for food. You may think this is an exaggeration; but I tell you it is a fair statement of affairs, not only in our locality, but almost all through the South. Half if not more of all these poor people earn goes for the very thing that keeps them down, behindhand, and crippled physically and intellectually."

I did not have the courage to tell the postmaster while he was talking that, if I were in his place, I would refuse to touch, taste, or handle, or have any thing to do with the accursed traffic. His answer, very likely, would have been that it would simply turn the trade to the other store across the way, without diminishing the amount of tobacco in any respect whatever. Well, even if this were true it would be starting to break the ground, even if it did nothing more. And, may the Lord be praised, we have an object-lesson right here in *our* town, that has been standing before the faces and eyes of all the people for fifteen or twenty years. A young man united with the Congregational Church. He was soundly and thoroughly converted. At the time, he owned a grocery store. He went to his pastor and to myself, in great trouble. With tears in his eyes he told us that he would lose money if he stopped the sale of tobacco. But his pastor and I both assured him that the Lord would take care of him. From that time to this he has positively refused to have any thing to do with tobacco in any shape or manner. His store is to-day the largest and finest in our town, and has been taking the lead during all the years that are past. His strict integrity is so well known that people telephone him from the right and the left to bring this, that, and the other, without even asking the price. His establishment *almost* makes no mistakes. People are not annoyed by being dunned months afterward for things they bought and paid cash for. His store is a clean and pleasant place for ladies to enter; and I think that even his rivals in business must acknowledge the statement I make is true.

Six years ago I told you about a boy I met

who was enthusiastic about building a boat—a boat that would carry him away out on the St. John's River, and enable him to see something of the world. I found that boy had grown to be a man, and had a wife and baby. To meet my appointments, and save time, I hired him to take me twenty miles to an adjoining town. We had lots of time to visit, and talk over matters. I always enjoy these confidential talks during my buggy-rides. I talked with this young man about his financial affairs. He greatly needed a little capital to get a start with. But he smoked a pipe a great part of the twenty miles. He had been reading GLEANINGS, so he knew what I thought of such things. Then he commenced with a sort of apology. This opened the way for me to speak freely. He said his wife felt so bad about it that he did break off once for three months, but that he wanted the tobacco just as much at the end of that time as at the beginning, and so he resumed the use of the weed, a slave to tobacco while he was little if any more than 21 years of age, with a baby to bring up in the footsteps of its father. He said his tobacco cost him about 50 cents a month—\$6.00 a year, and no more.

Said I, "Charley, if you keep on using just \$6.00 a year, and no more, that amount of money would buy a nice farm before you are as old as I am. But let me tell you Satan will not let his subjects off in that way. You tried to break off, and couldn't. You yielded to Satan. You have acknowledged him as master, and yourself as the slave—the *abject* slave. He gives the orders, and you obey them. He will say, 'A little more tobacco; and a little more; and a little more.' He is saying it already. This very afternoon you are using more tobacco than 50 cents a month will pay for. There will never be a minute in your life when it will be easier for you to break off and declare yourself a free man than at this very time. Satan is riveting your chains every day."

When I bade him good-by as he started back home, I went up close to him and begged him to remember our talk on tobacco. I told him particularly to remember that, through Jesus Christ, the great burden-bearer of all humanity, he could be a free man, unfettered and unshackled.

It seems a little funny, but a few days later I employed another man to take his horse and buggy to carry me from Oakland to Orlando. He, too, began to apologize for using tobacco, especially as he was a member of the church, and a good Christian man. Then he told me the following story. Oh how I wish it could be told in every home, in every pulpit in our land! yes, I will gladly send you printed copies of this story by the hundred or thousand if you will help me scatter them everywhere. I presume the man would not object to having his name given if it helps humanity, even if he does love tobacco. As nearly as I can remember, the pathetic story he told was something like this:

"Mr. Root, I once broke off from tobacco, and you may be astonished to know that I broke off without a bit of trouble. I was a

professing Christian, and the thing lay heavily on my conscience. It worried me day and night to think that I was setting an example before my family of growing boys that I knew was bad. The habit kept increasing. Finally I went down on my knees before God, and begged him to give me strength and grace for the ordeal that lay before me. The prayer was answered then and there. Deliverance came. For more than a year I was without tobacco in any shape or form. You will hardly believe me, but I declare to you it is true, *I did not want it one minute, day or night.* I rejoiced in my freedom. I urged others to do likewise. I was a clean man, redeemed and *emancipated* by the Lord Jesus Christ."

Oh what a testimony! No wonder I thought of Mr. Buder; yes, and did I not think of how even *A. I. Root* was, years ago, delivered from a fearful thing in just exactly the same way? O ye of little faith! wherefore do ye doubt? But my story is not ended. Now listen to what my friend told me:

"Mr. Root, after I had been freed from the terrible bondage for more than a year I was put on the jury. I was kept there several days. It was very monotonous, and we all became very tired. Every one of the other eleven jurymen was chewing and spitting almost constantly. The judge was chewing and spitting. Lawyers on both sides were chewing and spitting. Almost everybody in the courtroom was using tobacco. Every little while somebody would say, 'Have some tobacco with the rest of us to pass away the time. You need not use it after you get through court unless you choose.' Then I began to listen to the tempter. May God forgive me. I trifled with temptation, and took a chew. In an instant the old appetite opened up like a great cataract. It swept me off my feet, as it were. I chewed and chewed with the rest of them, and I have been using tobacco ever since. May God help me; but it seems as if I could *not* break off now."

It was almost a plaintive wail as he put some more of the stuff into his mouth. I said to him:

"My friend, do you remember that strange passage in Matthew, where Christ says that the condition of a man who has gone back to evil ways after casting them aside for awhile is worse than before he attempted to put the evil spirit out? The evil spirit comes back and brings seven other evil spirits with him."

"Oh! yes, Mr. Root, I do remember it. I have often thought of it, and I am that man. I see it clearly."

Let us now go back to the judge and jury, lawyers, and other officers of county and State. In Florida the whole crew were using tobacco. Is this an extreme case, or is tobacco *king* in like manner in all the other States of this Union? Is it true of the capitals of our States as well as of our county-seats? How is it in the capitol building at Washington? When a man is accused of a crime, and the laws of our land accord him a fair and impartial trial, does he come before a body of his fellow-men who are clean men, pure in heart, with brains undimmed by a drug of any sort? or does he

sit before a tribunal of tobacco-chewers and tobacco-smokers? Is it the clearest heads the land can furnish who judge him, or is *tobacco* once more the *king* over all? I know this sounds hard and severe. I know many good men—yes, and some good women, will think I am a fanatic, and will say I spoil the good I might do by pushing things to such extremes. Dear friends, I do know it is the almost universal fashion for officers of the law, and, in fact, for public men in almost any capacity, to think they must smoke and chew just as soon as they are elected to office.* I have told you that our own county commissioners seem to think they would not be respected or considered fit for office unless they learned to use tobacco straightway as soon as they are installed into office, even though they have got along all their lives until past middle age without it, and even been hostile to its use. Let me digress a little.

At Lakeland, Fla., the train was an hour or more late. I did not wish to sit in the waiting-room; in fact, the ladies filled the room pretty well, any way. I wanted to be out in the open air. There was one seat outside that would hold three persons comfortably. Two traveling men sat there smoking and talking. I finally took one end of the seat and turned my back toward them. In the open air I could stand the smoke very well; but the series of oaths and curses while the men were discussing pleasantly and good-naturedly some common topic fairly made my blood curdle. The situation was nothing new to me. Everywhere in traveling I had to put up with smoking and swearing. We are told our churches are running down. Our ministers have always found it a little difficult to get the members to come to prayer-meeting, and more difficult still to get those who are there to stand up boldly and *testify* for Christ Jesus. Now, these traveling men had no hesitation at all in taking the sacred name of Christ Jesus on their lips in tones that could be plainly heard by men or women. They were not backward in "testifying"—testifying to what? Their love for the Redeemer? O my God! what a thought! They seemed to take pride in testifying to the world and to all around that they *belonged* to Satan; that they hated religion, the Bible, and Christian people. Why *else* should they curse and swear?

A little way from the depot, near an electric light, another crowd of people were waiting for a coming train. They were sitting on trunks and baggage. I found a seat out there. I wanted to go to Braidentown the next day, and I was a little uncertain about where to take the boat. Two of the traveling men very kindly explained the whole matter to me,

showing me how I could save time and considerable money. As the matter was a little complicated, they, with exceeding kindness, mapped it out for me, told me how to find the persons I wanted, and how to get back as soon as possible. They were very kind and pleasant people. I think one was a physician, because the other called him "doctor." Both smoked their cigars, and cursed and swore—not because they were displeased with any thing, but because it was the fashion. Has the use of tobacco any thing to do with this matter of profane swearing? When you are out among men, use your eyes and ears, and see what you think about it. Everybody knows—and the man who uses tobacco, perhaps better than any one else—that the use of the drug is not conducive to a high state of spirituality. It is a stepping-stone to drink; it is a stepping-stone to cursing and swearing; it is a stepping-stone to crime and suicide. My good friend, would you want to see your own boy learn to use tobacco? Our departed friend C. F. Muth and I once had a long talk (I think his wife and daughters were present). He had been bantering me. As our talk closed he looked very sober. He said to the rest of them, "Bro. Root is right. His way is the *better* way. His way is the *safe* way." In your better moments you will agree with me; and if so, dear friends, why do you use tobacco, and drink and swear? Why do you commence any thing so repulsive to good breeding, to good manners, and to purity? *Why* do you set the example before boys who are growing up? This boy I have told you about, who has a wife and baby, and is not yet 21, learned to use tobacco because he saw the judges, the lawyers, and the doctors setting him the example.

It is not *bad* men alone who learn to smoke and chew. I have told you these traveling men are some of the pleasantest and kindest people in the world. Very often the conductor or the ticket agent is unable (or unwilling to trouble himself) to give one the information desired; but a traveling man will pull out a folder from his pocket, or a railway guide, and spend a lot of his time in figuring the thing out. Yes, he will often go to another traveling man, and he will not give up until he makes you understand just the difficulty in making the point you wish, at the least expense. He will tell you which hotels are best; that you want to make a bargain beforehand to get low rates; he will tell you the good men in a certain town to go to. Then when you try to express your thanks for the pains he has taken he says that is what we are in the world for—to help each other. His behavior is *Christianlike*. If he knew you did not like swearing he would stop while you are around; but if you do not say any thing his blasphemy and profanity, and sometimes obscenity, are such that you are prompted to think only the prince of the powers of darkness could have studied up any thing so awfully low and bad. These men do not *know* what they are doing. They have not got hold of the spirit of true Christianity—that is, the great bulk of them have not. Here and there

* Alexander MacLaren, in a recent number of the *Sunday School Times* says:

"We to day are sinking into an abyss because of our admiration for the military type of hero; and there is not such an immense difference between the mob that rejected Jesus and applauded Barabbas and the mobs that shout round a successful soldier and scoff at the law of Christ if applied to politics."

And if this same successful soldier or military hero smokes a cigar, straightway almost every American boy thinks that this, of course, is the way to be a man. God forbid that this state of affairs should continue.

we find a converted commercial traveler holding up the cross of Christ Jesus, and fighting his way against fearful odds. Oh how I do love to get hold of such a man, and put in my feeble voice to back him up!

At that place called Flora Home the landlord sat before the fire, puffing his pipe, with every thing in disorder all around him. A traveling man, with jovial good nature, gave him a short sharp sermon. He told him his pipe would be the ruin of him, body and soul, unless he gave it up. A bystander assured the stranger that ruin it was, then, for he would *never* let go of his pipe, even hardly long enough to sleep. When they found there were two "pious" people in the crowd they stared at us in evident surprise. Why, it brightened me up, and made me forget I was sick, to find somebody who could, good-naturedly, give the sleepy tobacco-soaked crowd a *shaking-up*. Now, in thinking this matter all over, I am forced to the conclusion that these people who are setting such bad examples, and who are going thus headlong down to ruin, do *not* realize or *know* what they are doing. In one sense they are crucifying again the Savior who meekly gave his life for wicked men. But I think it can be said of them, as Jesus said of his persecutors away back there in the dark ages, "Father, forgive them, for they know not what they do." And these good friends—for I have reason to call them so—these good friends of mine that I met and talked with, when they smoke and drink and swear, really, in the language of our text, "know not what they do." The great wide world needs teachers; it needs ministers of the gospel, and laymen who are not *afraid* to show their colors, to speak out and plead for Christ Jesus. For some reason we can but dimly understand, God has laid the responsibility on us all; and even though I myself sometimes feel discouraged to think there are so few who are with me, and so many on the other side, especially in this matter of tobacco, yet when I find, after many days, the good fruit that my feeble words have brought forth, then I get new courage, and go on my way rejoicing. May the Holy Spirit bless these words I have written; and may they find lodgment in human hearts, and bear fruit.

After dictating the above, a friend handed me the following, clipped from a prominent agricultural paper for 1899:

Tobacco manufactured in the United States during October was 24,951,914 pounds, an increase of 6,271,078 over the same month in 1898. The cigar production for last month was 471,800,050, an increase of 75,771,117 over the corresponding month of last year. The small cigars not included in these figures numbered 79,918,150, the greatest on record. Every other class of tobacco production shows a material increase, which is encouraging.

The above is called "encouraging;" but to *whom* is it so? If we divide the world into two classes—those who would be encouraged by such statistics and those who would be discouraged—on which side should we find the virtuous, mainly, and on which side the criminal, depraved, unthinking, indifferent, and those who use their columns for the propagation of such a gospel of degradation?



HICKS' ALMANAC, AND PROTECTING ORANGE-TREES.

As soon as I got South I began to hear Hicks quoted. In fact, one of our bee-keepers where I stayed over night had just invested between \$27 and \$28 in protecting some orange-trees because Hicks said there would be a severe freeze on a certain Saturday night. I happened to be there that Saturday night, and the weather was almost as warm as in June. Mosquitoes were lively, and the fireflies were flitting about after dark. My friend thought that probably the cold wave would get along a little later; but, although I was in the neighborhood several days, there was nothing of the sort—not even a trace of frost. He finally made a remark something like this:

"I told father I did not believe Hicks knew any better than anybody else what would happen six months ahead; but he was so sure that Hicks was sound and scientific that I went and invested all that money for protection. I now wish I had my money back in my pocket."

I asked to see just what Hicks said in his almanac; and for once in his life he had been unguarded enough to say right out in plain words that a severe blizzard would come at just about that time. Later on, in another part of Florida another bee-keeper insisted that Hicks *correctly* predicted a very severe freeze. I asked to see the prediction, and it read something like this:

"On the 13th, 14th, and 15th, Vulcan will be in the ascendancy; so, look out."

Now, if that means there is going to be a severe frost, then Hicks hit it; but if the rigmale role about "Vulcan" means one thing at one time and something else at another time, I do not regard it as very clearcut prophecy.

THE PECAN INDUSTRY OF THE SOUTH.

When at friend Day's, in Silver Springs, Miss., I found him quite enthusiastic about growing pecans. He had a number of trees that cost him all the way from a few cents up to choice budded paper-shell stock that cost \$1.50 each tree. He had also learned the art of budding this difficult tree, and showed me with considerable pride the shoots from buds he had set. Paper-shell pecans often bring extravagant prices—if I am correct, somewhere from 25, 50, 75 cts., and even \$1 00 a pound for large nuts with soft shells and finely flavored meats. Friend Alderman, of Wewahitchka, has had the fever for some years. In fact, he showed me a tree grown from a nut that he himself planted 27 years ago. This tree is now three feet in diameter about two feet above the ground. It is 50 feet high, and the branches have a spread of fully 50 feet. The trees bear annually barrels of nuts. Nobody had kept account of how many. I found some under the trees that were very nice eating, in the fore part of February. The tree

now stands in a rather deserted place, and a great part of the nuts are gathered, as the wind shakes them off, by the children, and, I fear, some by the pigs. The pecan-tree is quite hardy. Frost does no harm to it anywhere in the South. It has no insect enemies, and it is almost an ever-bearer—that is, choice budded stock. All over Florida, north and south, I saw more or less pecan-trees; and as they are closely related to the hickory tree, I am not sure but they could be grown clear up here in Ohio. Who can tell me more about it?

When I left River Junction, and went down the Apalachicola River, the river was high and the banks overflowing, as I told you on page 198. Well, it was very easy for the steamer to go down stream. In fact, between 8 o'clock at night, and before light the next morning, we made about 130 miles. But to get back to the railway once more it took all together about two days. These river steamers are not very reliable in their methods of transportation. They told me that they carried the U. S. mail, and had to be pretty nearly on time; but on that occasion the mail remained uncalled for something more than 24 hours. After reaching the railway my next stop was a place a few miles out of Palatka, called Flora Home. That is a very pretty name, is it not? Well, some of you may have seen for two years past the advertisements of a little paradise on earth, just starting up in Florida. Some newspaper firm in Chicago sent out the advertisements and circulars. To make a long story short, they told how fast town lots were being taken up, and that if you hustled you might possibly get one of the beautiful places. For a small consideration they would plant trees for you, so when you came to build your house in the beautiful growing village you would be greeted by green trees, shrubbery, etc., all your own. Quite a lot of Medina people got the fever a year ago, and a few went down there. I noticed in the circular some photos of magnificent residences that I supposed were a part of the town of Flora Home; but after I got on the train I noticed the circulars did not exactly say that. It said, "Views of typical Florida homes."

I reached the place after dark. The depot was certainly just what the real-estate men had photographed, but it looked a little cheap, even by moonlight. But that did not matter. I inquired for a hotel, and somebody pointed toward a light in the distance. I looked for a sidewalk, and finally pulled my feet, one after the other, through the sand. The hotel was a cheap frame house. The waiting-room and office was full of men, all smoking pipes until the air was thick with tobacco smoke. After some trouble I found which one of the fellows with the pipes was the landlord. He said I could have a bed if I would sleep with another man, and that every bed but this one had two occupants already. I asked if there was no other hotel in the place, or any place where any one could get a whole bed. For some reason or other they seemed to think I was rather green. They told me I would have to

take up with the half of the bed offered me, or sit in a chair by the fire. I went up to bed, being careful to close the door to keep out the smoke which was fast filling every cranny upstairs as well as down. I wanted a window open, but the three other occupants objected. They all had bad colds like myself. The bedroom was just large enough to contain the two beds. The three big men were soon snoring away, each one taking a breath that seemed to me required a large part of the air in that little room. If I opened the door the tobacco smoke would pour in, to say nothing about the bad language that came up from the crowd below playing cards just at the foot of the stairway. I was sick already, and, to cut the matter short, I do not believe I would recommend Flora Home as just the place for an invalid, no matter what the promoters of the new tropical town may tell you in their printed circulars.

As soon as it was light I got out of that—well, you may call it what you like—and started to look up some of the beautiful homes and gardens that the circulars told about. After some inquiry I found the nearest garden was about half a mile out of town. The man had, perhaps, half an acre under cultivation. There was a very pretty little peach-orchard with trees just coming into bloom. There was a little patch of strawberries also in bloom, and some fair-looking Grand Rapids lettuce in a bed covered with cloth; but as nobody seemed to be stirring in or around the house, even though the sun was up quite a distance, I did not have a chance to talk about the possibilities of the locality. At the depot I met a poor fellow, homesick and desolate enough. He had been attracted to Flora Home by the published statements, and was disappointed enough to find a vast difference between newspaper yarns and reality. One of the statements was that there were over fifty houses already built in the village, and many more started. I do not think there were half a dozen buildings, including the hotel, that might be said to be in the town. But a circle a mile in diameter might, perhaps, include fifteen or twenty buildings of some sort; and an area two miles across might include fifty buildings of some sort. The greater part of the land, like a great part of Florida, is sand so soft and yielding that it is a hard matter for one on foot, or even a horse and wagon, to get anywhere with any sort of load. Now, somebody who has real estate to sell around Flora Home might make a much better statement than I have done, and tell the truth; but I have tried to tell it carefully and honestly.

Before going further with travels I wish to say something under the head of

HEALTH NOTES,

or, perhaps we had better say, health notes while traveling. Sometimes I think it is something of a cross to bear, that I am obliged to be so exceedingly careful about what I eat and drink, especially when away from home; and at other times I am led to think there may be a providence in it. It enables me to be more helpful to those who like to follow me

in my researches after God's truths. As an illustration, wherever I am, wherever I stop, I generally make inquiries, almost the first thing, about the water closets. In the average hotel here in the North, we have warm and convenient closets, not only inside of the building, but, in newer hotels, on each separate floor. A great many times when I ask for a sleeping-room near the closet, I can have it without any trouble; and when I can find a nice clean bath-room, wash-room, and closet combined, near my sleeping-apartment, I feel quite happy.

In the South, the hotels, especially the older ones, pay very little attention to the health and comfort of their guests, in the line of closets. At hotels where they charge \$2.00 or \$2.50 a day, when you ask about the closet they will point away off across the garden. I am not finding any fault with private homes, mind you, for I found very comfortable arrangements of this kind everywhere I stopped during my recent trip. Let me give you a glimpse of one hotel where they charge \$2.50 a day. I was expecting to get breakfast there; but when I inquired for a closet the landlord told me to go into the kitchen, and then the cook would show me the way. The cook was a colored man. I do not blame him for being black, but I do blame him for being filthy-looking, and for having about the filthiest and *nastiest*-looking kitchen I ever saw on the face of the earth. To add to it all, he was smoking the nastiest tobacco I ever smelled in my life, with an equally nasty pipe. The cooking-room was thick with tobacco smoke; and as he leaned over his culinary work he kept on puffing. It seemed to me he was *trying* to blow the smoke into the stuff he was cooking. The closet the pointed out was equally filthy. I did not get any breakfast at that hotel; but I was intending to do so, and should have done so had not mere chance led me through the kitchen.

Now, I do not know but there is a providence in this matter. In fact, I begin to think that perhaps the great Father's plan is to send me back behind the scenes of the dining-rooms and other places. You know I have often gone through saloons and into their back apartments, just because this infirmity of mine *sent* me there. After this visit I have told you of, especially where colored men have charge of the cooking, I have been suspicious a good many times of the food brought. Some of these colored cooks, that run the whole ranch without having anybody to look after them, might *poison* you with their filth, and I do not know that they would care much if they did. I say this after sizing up several of these chaps as well as I could.

Now, some of my friends have felt much hurt, and some of you have stopped taking GLEANINGS because of my defense of the colored people. May be you will feel better when I say right here I do not believe colored men—and, for that matter, perhaps a good many colored women might be put in with them—should be *allowed* to cook without some competent white man or woman to superintend their work. I spoke about sitting

down to the table with a colored man or woman. On the Louisville & Nashville Railway, both going and coming, I became acquainted with two colored porters. One of them had charge of the buffet cooking; and I would just as soon sit down to a meal with either of these men as not. They were bright, intelligent, skillful, neat, and clean. But the average negro of the South, especially the tobacco-using blacks, are not fit to sit down with me nor to do the cooking for me or for my family. They might be washed up and civilized. But somebody would have to stand over them a good while. Now, this is a more serious matter than it seems. People die every little while from something the doctors call ptomaine poisoning. This poisoning, if I understand it, is from either animal or vegetable food in a certain stage of decay. While at River Junction I noticed a very bad taste in my mouth. Now please bear with me a little, friends, because I am going to touch on a point that concerns not only health but perhaps *life itself*. My mouth not only tasted bad, but the eructations of gas that came up from my stomach, or belchings of wind, some might call it, were "just awful." The emanations from a frog-pond in dog days were nothing compared with it. The smell and taste were more like rotten eggs. I felt fearful of the result. I thought if I had a good square meal of wholesome food the foul mass would probably be carried away and passed through the bowels; but for two or three days I carried with me that awful foul breath. I thought of the ptomaine poisoning, and I believe yet it was a mild form of it, caused by something I ate at some hotel or on some steamer where these filthy colored people did all the work. I meditated taking an emetic or something that would make me throw the stuff up; but I hoped Nature would take care of it after her own fashion. Well she did, and I am going to tell you how.

In about three days my stomach seemed to have regained its normal state; but when this poison got into the bowels it first produced diarrhea and then dysentery. My experience in Flora Home, shut up with three big men in a little tight bedroom, with tobacco smoke coming up from below, did not help Nature to get rid of the poison. I was sick all night. During the day I felt pretty well, and got off at a station called Favorita. My friend A. F. Brown lived six or seven miles out in the woods. Favorita is a very pretty name, but there are no houses there, nor is there a station. I do not know that there is even a platform. You just get off the cars, and step into the sand. A boy was there with a buckboard, waiting for the mail. I could not tell friend Brown what day I would be there, so he could not be at the train for me. I could not have ridden my wheel out to my friend's, nor even gone on foot, for, besides the sand, there were long stretches of road that were all under water. In fact, it came almost up to our feet as we sat in the buckboard.

Just before reaching Bulow—and, by the way, that is not a town either, but just a post-office in the woods—we passed through some

of the most beautiful tropical forest I ever saw in my life anywhere. Both cabbage and saw palmetto were thriving in most wonderful luxuriance. The ground was so rich that every thing grew with surprising tropical luxuriance. The driver informed me that that was Mr. Brown's property. He said it extended nearly a mile.

At length we came out of the woods and drove up before what I should call a fine old castle. It was made of Florida wood, however, instead of stone. My friend rapped at the door, but no one answered. He said he thought Mr. Brown was out after ducks, but would be in soon. The postoffice was a mile further on, and no one lived anywhere near. I decided to stay and await my friend's return. As I knew him quite well I made myself at home, and built a big fire in the open fireplace, and after blowing a big shell to announce my presence I began to look around a little. The more I explored the great building, the more I was astonished. Mr. Brown is not a married man—in fact, he lives all alone. What was he doing in such a great house, with its furnishing of books, paintings, heavy expensive curtains, and all the paraphernalia of a rich man's castle? A beautiful porch with expensive ornamental carvings graced the front of the house. A pair of broad doors opened up at the foot of a broad stairway. Half way up there was a landing, and the stairs curved gracefully to the right and to the left. On this landing was a pair of storks that startled one by their lifelike appearance, with heads about level with your own. Between them was an expensive antique vase, and costly ornaments met one at every turn. There were out buildings without number, and for every purpose imaginable. There were acres of grapes to furnish wine to fill the spacious wine cellars. There had been acres of orange-groves, but they had gone into a decline.

It was getting dark, and still no one came near. It looked as if I might be called on to pass the night alone in the wilderness in that great castle. Something said to me the secret of these things in this place was that the house, for some reason or other, had the reputation of being "haunted." Mr. Brown was just the chap for such a place. The more spirits and hobgoblins the house contained, the better it would suit him, especially if he got a very low rent.

After reading various books in the choice library, just as I began to think I should have to investigate the larder and get along for the night as best I could, I heard voices; and, wasn't there a hand-shaking? Mr. Brown had a friend with him, and they had some of the handomest ducks, fat and plump, that ever delighted any hunter's heart; and my friend soon convinced us that he had learned how to cook during all his days of bachelorhood. Four or five years before, the doctors told Mr. Brown he had but a few weeks to live. One of his lungs was gone with consumption, and the other was badly diseased. In fact, the sunken lung has now caved in, as it were, and the other one has developed so as to double duty. When the doctors gave him up he went

where he could get the salt breezes from the ocean, and live mostly in the open air. When he goes to bed he has the windows wide open, winter and summer, virtually sleeping outdoors.

During the night I had evidence that poison that has been forced down into the bowels is not in a very much *better* place than having it in the stomach. I had a great deal of distress; but I felt sure that, by a strictly lean-meat diet (my old remedy, you know), I should be all right in a day or so. The second night, I had an attack of dysentery so severe that I feared I should never live through it. Mr. Brown and I were alone, a mile from anybody else, and many miles from a doctor. I managed to get out by the fire, and scraped up strength enough to pick up a stick of wood and strike on a door and wake Mr. Brown up. He recommended my old water-cure treatment. He said he got it from GLEANINGS, and it had done very much in helping him back to life after the doctors said he had got to die. I told him I had tried it very thoroughly just before going to bed, but it did not seem to reach the spot. He got me some water, just as hot as I could bear my hand in, and necessity became the mother of invention. I discovered then, for the first time in my life, how to get water further through the intestines than I had been able to get it before. Let me beg your pardon, dear friends, for speaking plainly, for I am sure it is a matter that may save life in an emergency. In order to get the hot water clear along the intestines to the seat of the pain, or poison, if you choose, while using the hot-water enema in the way we are familiar with, I first stood on my feet, then bent my body so as to bring my head as near my feet as I could. This brought the intestines below where the water is introduced, and I felt it slowly working down until it reached the foreign matter that Nature was trying to get rid of. By changing my position the water all came away. I did this repeatedly, and the pain gradually subsided so I could go to sleep. You may be sure I did some earnest praying for help when suffering that night. My prayer was heard and answered in the way indicated above. But I declared then and there, that, if God would spare me till morning, and I was able to travel, I would take a bee-line for home. However, in the morning friend Brown persuaded me to go and see a doctor first and ask him if he thought I was able to go on my trip. So we two started for the nearest physician. At first I felt as if I could hardly sit in my seat; but the sun came up, the mockingbirds were singing, the salt breezes were coming from off across the ocean, the tropical scenery was all around me, and little by little I began to straighten up. When we got near the doctor's, toward noon, I said:

"Why, friend Brown, I do not believe I *want* any doctor after all. If I have the right kind of food, and take care of myself, I think I can go on with my trip."

Again and again when in distress have my prayers been answered in the same or some similar way as outlined above.

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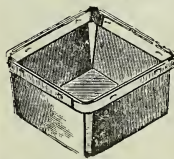
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